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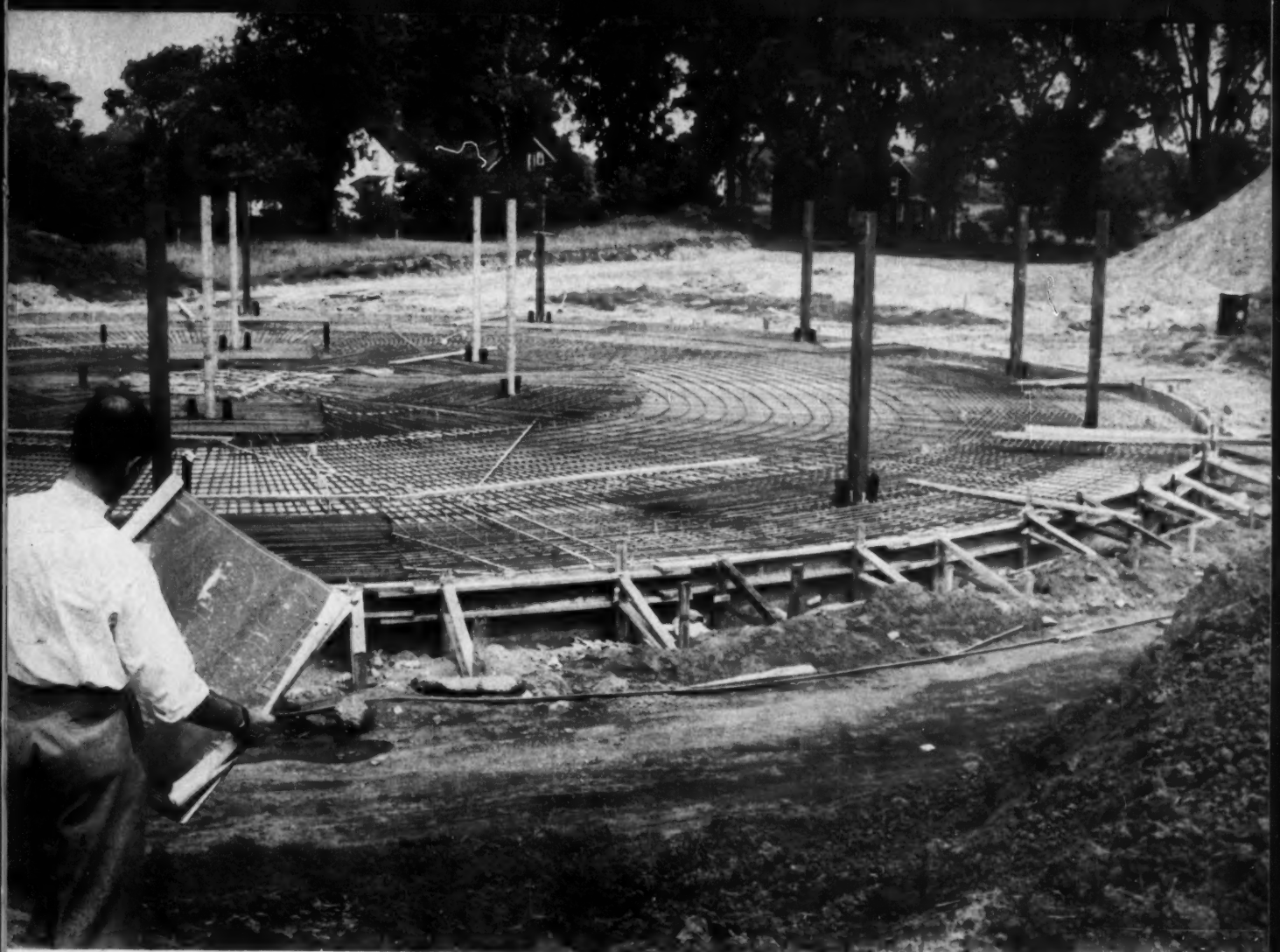

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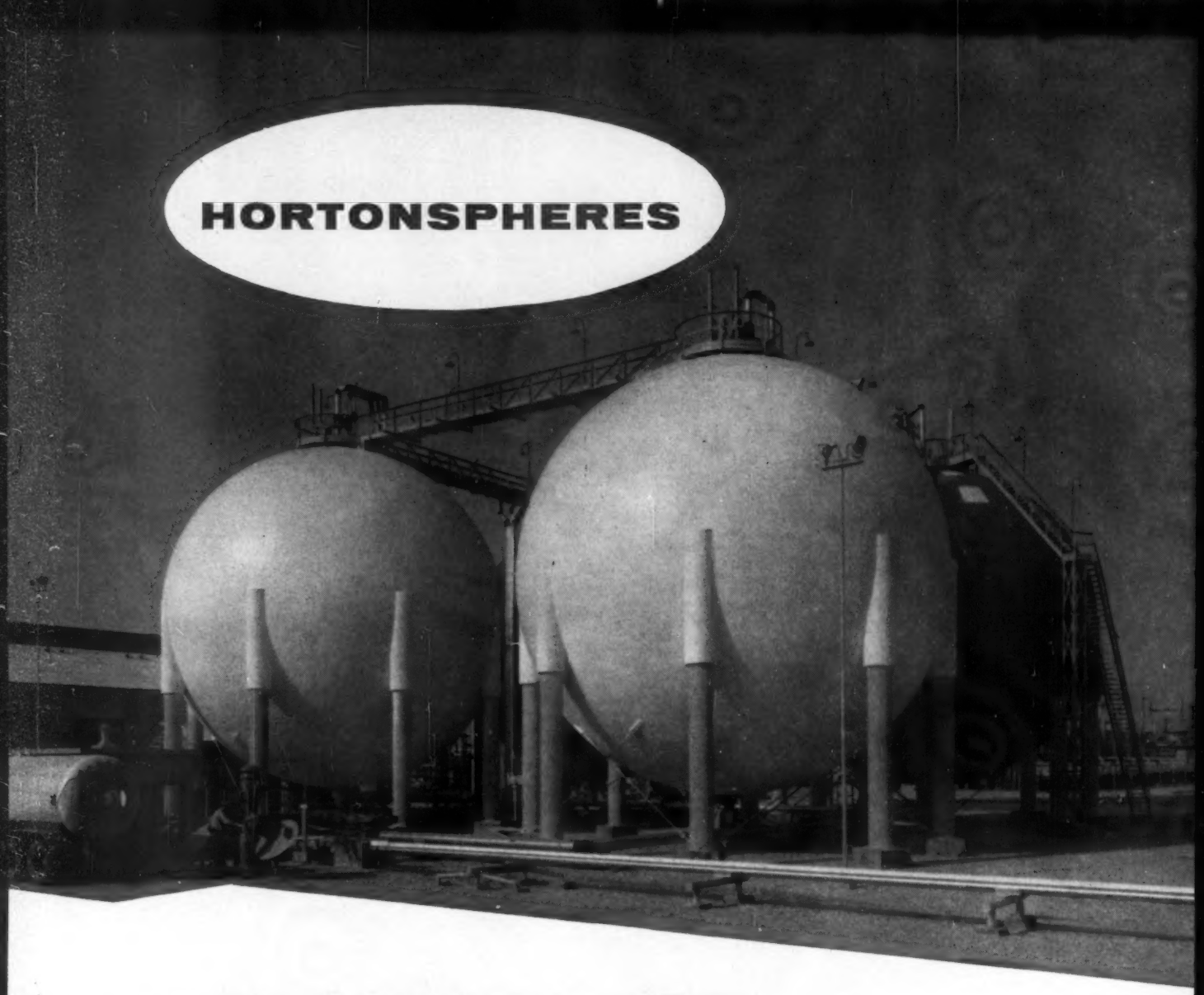

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These 10,000-bbl. Hortonspheres®, located at the Phillips Chemical Company, Pasadena, Texas, are used to store anhydrous ammonia to take care of fluctuations in rates of shipping and to reserve ample supplies for use by the Phillips Petroleum Company.

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Outstanding Performance On All Types of Jobs The Allis-Chalmers BD-3 is a *quality* motor grader — with such features as tandem drive for maximum traction; exclusive ROLL-AWAY moldboard that efficiently rolls the load instead of pushing it; high axle and throat clearance to clear large windrows; husky tubular steel frame that absorbs stresses and strains. In addition, the BD-3 has the right combination of weight, power and traction to do outstanding work on a wide variety of motor grader jobs.

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6 forward speeds to 18.5 mph
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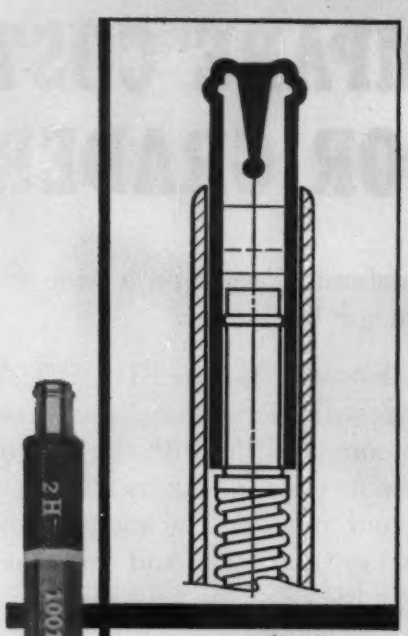

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Now it's the new, sturdy, solid brass lead sharpener built into the Technico Mars-Lumograph push-button lead holder. Saves you work, time, money.

Get the imported Mars Technico lead holder and leads today—they are the best, yet cost no more.

The 1001 Mars Technico clutch mechanism holds leads securely; light in weight, perfectly balanced; $1.50 each, less in quantity.

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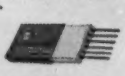

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Robert F. Boger
Publisher

November 10, 1955 — ENGINEERING
Vol. 155, No. 19 — NEWS-RECORD

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder **Executive, Editorial, Advertising and Subscription Offices, McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Publication Office, 99-129 North Broadway, Albany 1, N. Y. Donald C. McGraw, President; Paul Montgomery, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Joseph H. Allen, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Circulation Director. **SUBSCRIPTIONS:** Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address. Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. **Position and company connection must be indicated on subscription orders.** Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere and the Philippines, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries $20.00 a year; $30.00 for two years; $40.00 for three years. Second class mail privileges authorized at Albany, New York.

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"Been settin' here, wettin' this fool stick for twenty years—and she ain't rotted yet." Paul Bunyan threw down the 12x12 Chemonited* timber in defeat. His disgusted sigh flattened 30 acres of prime Douglas fir. "Yessir, Babe, I been suckered again by a city slicker. That Baxter man bet me a year's free loggin' to a month in Frisco that that there stick would never rot—even in moist ground. On account of this new fangled presarvative, Chemonite* . . . Well come on, you lazy Blue Ox, let's get haulin' . . ."

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pressure treated lumber

*You WERE slickered, Paul. Because hundreds of installations prove that when you pressure treat wood with Chemonite, as the Baxter people do it, you've got a PERMANENT construction material protected from decay and termite attack. Just like the man said, Paul, even water and exposure won't take away that locked-in Chemonite protection. Baxco Chemonited wood is clean, odorless, paintable . . . Write for "Chemonited Forest Products," 28 page brochure on the development, testing, uses and service records of this wood preservative.

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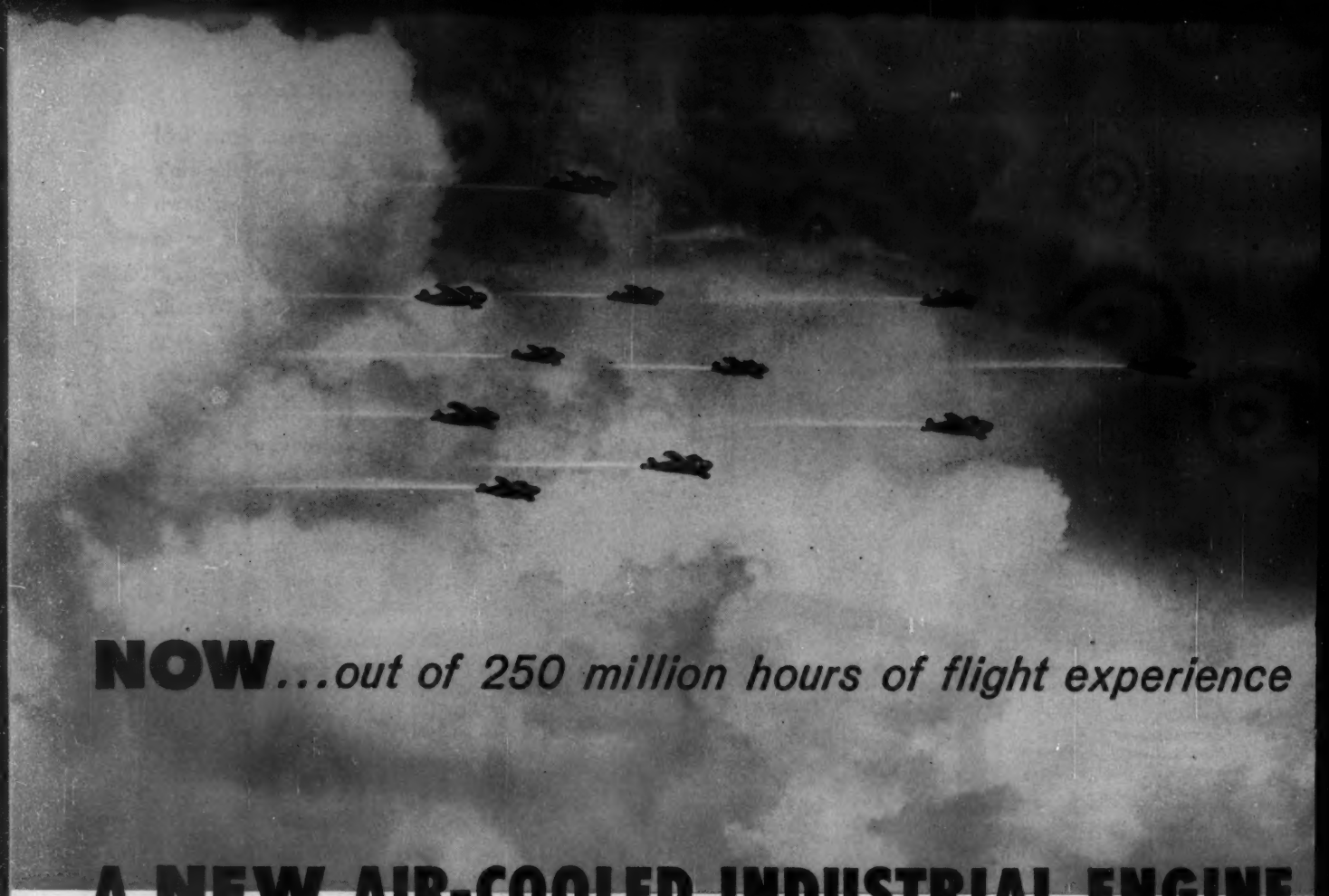

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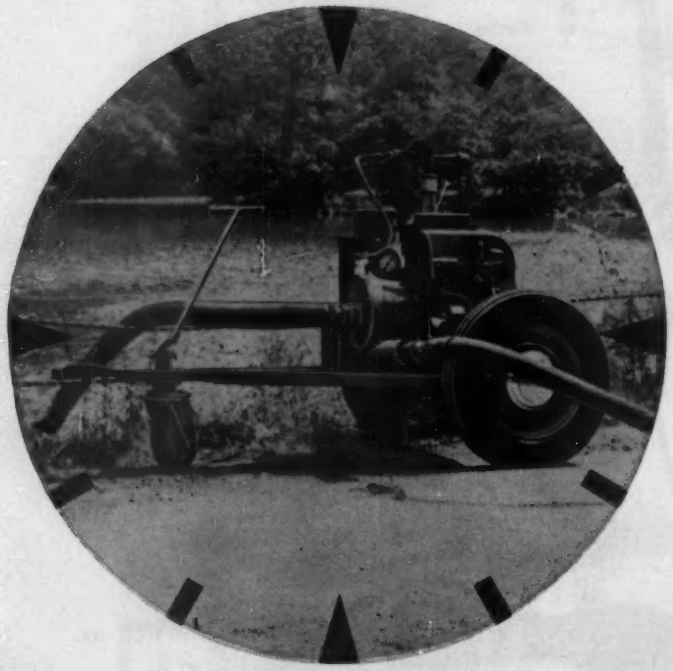

RUN FOR MORE THAN 1,600 CONTINUOUS HOURS! In Williamsport, Pa., this C2-90 was test-run in an actual pumping application for more than 1,600 hours continuously, without overhaul or any service except gas and oil. The engine is still in active service as a demonstrator.

Designed specifically to solve construction industry problems:

NEW! Reserve Power—C2-90's full-power rating provides a ready reserve for generators, pumps, pavers, crushers, mixers, etc.

NEW! Long Life—the C2-90 is a ruggedly built industrial engine specially designed to outlast any other engine on the market.

NEW! Cooling Design—to avoid overheating that comes with dust conditions, the C2-90 provides improved cooling surfaces, a cooling fan that operates through entire speed range, and pre-cleaners.

NEW! All-Weather Performance—the C2-90 advanced air-cooled design performs normally in extremes of heat and cold.

In addition, this short-stroke, oversquare engine has the advantage of modern, high-speed operating ranges.

Specifically designed construction equipment accessories are available: gear-driven hydraulic pump; front-end power take off; various power take-off adaptations, i.e., pulley drives and various reductions for engine and anti-engine rotation.

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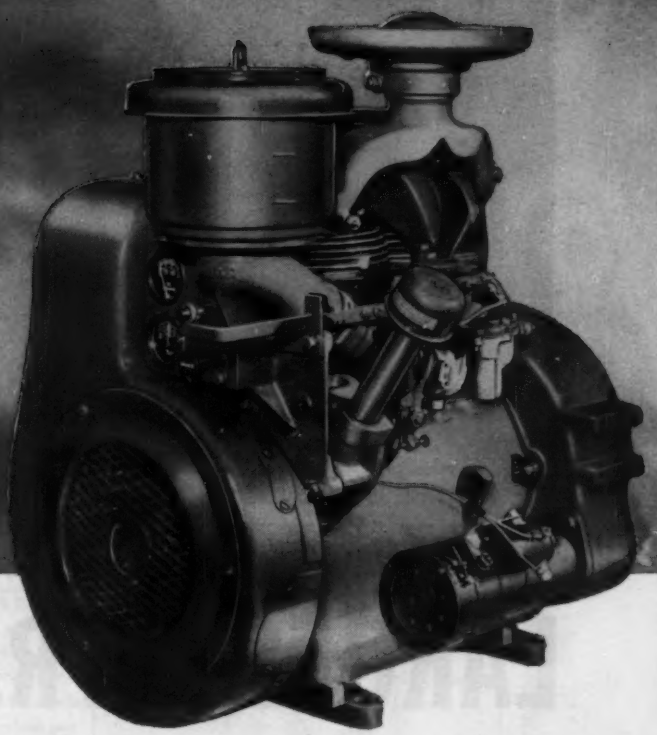

THE FULL-POWER LYCOMING C2-90

Rated 30 h.p.! Delivers 30 h.p.!

The C2-90 is the result of a quarter century of aircraft experience... built to the same high standards that have made Lycoming a top name in engines for aircraft—which demand *absolute* dependability. That is why the C2-90 does just what we say it will do—works at *full power* under the most rugged conditions. So why buy an engine you have to de-rate (up to 50% for continual-duty service)? Here is an engine which continually delivers *full power!*

For more details write to Sales Engineering, Industrial Engines, Lycoming Division of AVCO, Williamsport, Pa.

SOON TO COME! New opposed twins, opposed 4's and V-4's for all applications up to 75 h.p.

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LYCOMING • AVCO ADVANCED DEVELOPMENT • CROSLEY

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500 hp M-R-S "200 Special" with 34-yard struck capacity WOOLDRIDGE–M-R-S "OS-300-B" combinations set new records on Ohio job.

HIGH PRODUCTION AND HIGH PROFITS GO HAND IN HAND WITH THE WORLD'S

LARGEST TRACTOR-SCRAPER

C. F. Replogle Company proves new concept of big power and

Demonstrating the higher comparative productivity of mammoth 34-yard struck capacity WOOLDRIDGE–M-R-S Scrapers with 500 hp M-R-S Tractors under tough job conditions, C. F. Replogle Company put two of these huge combinations to work alongside two conventional rubber-tired tractor-scraper units of 18-yard struck capacity. Although each of the big units carried 16 more yards, they loaded in approximately the same time and actually completed each cycle faster than the smaller units!

During relocation of Highway 7 around the Ohio River Cumberland Lock and Dam Site, wet silty river bottom borrow frequently had to be disked to dry out for later compaction. Constant rains kept haul roads over the 2.18 mile job slippery and spongy. Even under these conditions, Replogle's Job Superintendent, Charlie Thompson, reported that the big combinations were getting 34-yard loads in less than one minute and 45 seconds! The exclusive M-R-S hydraulic weight transfer feature, which transfers forward weight of the scraper to the tractor drive wheels, gave the extra traction needed in the tough spots. New wide-base low-pressure tires provided the flotation and traction necessary to keep the rigs rolling safely at high-profit speeds in the soft pits, fills and haul roads. As a result,

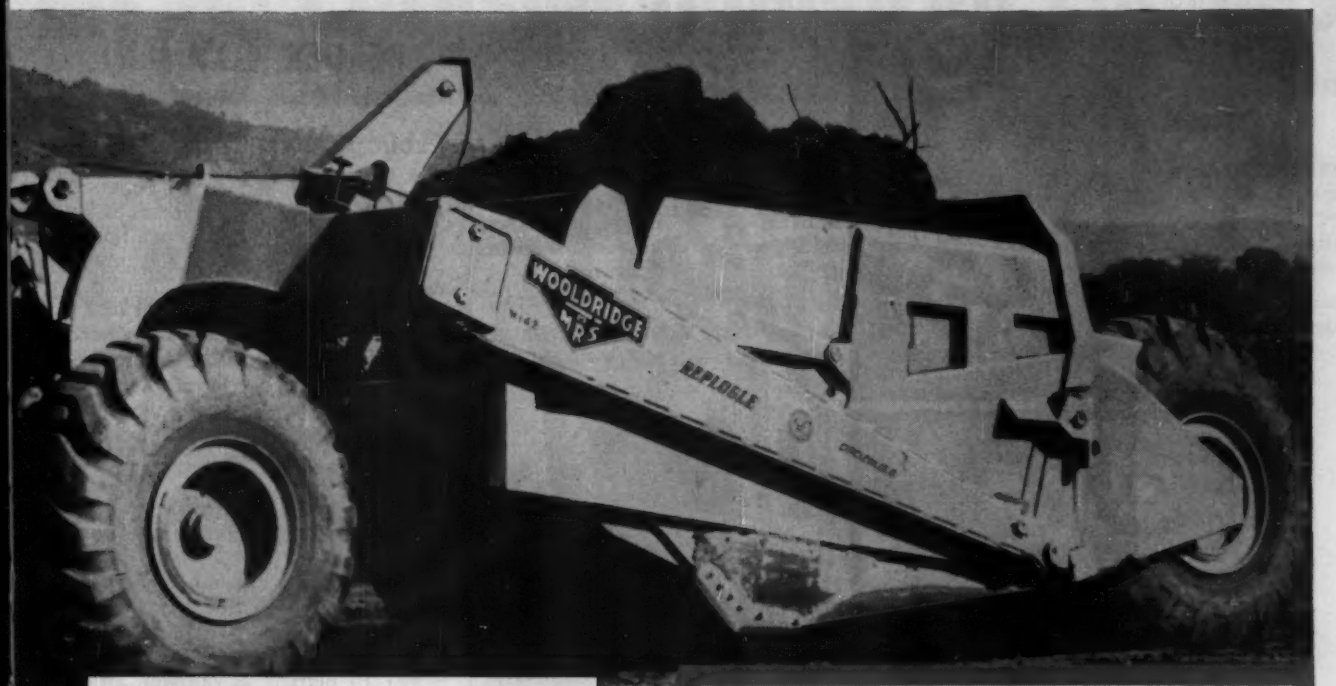
C. F. Replogle heads the Circleville, Ohio firm which has set a new milestone in earthmoving progress through successful introduction of the world's largest rubber tired tractor-scraper combination.

THE EMBLEM OF DEPENDABILITY M-R-S MANUFACTURING COMPANY

FLORA, MISSISSIPPI

THERE'S AN M-R-S TRACTOR FOR EVERY POWER NEED

TRACTOR MODEL 200 SPECIAL	500 HP
TRACTOR MODEL 200	335 HP
TRACTOR MODEL 190	288 HP
TRACTOR MODEL 150	250 HP
TRACTOR MODEL 125	210 HP



500 HP M-R-S TRACTOR

41 (heaped capacity) YD. WOOLDRIDGE—M-R-S SCRAPER

COMBINATION

capacity on tough Ohio job

these biggest of all earthmovers actually accounted for more than double the production of the other units.

C. F. Replogle Company's application of this new concept of bigger power, capacity and speed marks a milestone in lowering earthmoving costs. Other progressive contractors have come from all over the country to see for themselves how this world's largest rubber tired unit meets the problems of rising production costs. Already, more WOOLDRIDGE—M-R-S combinations are on the way to important jobs. It will pay you to study this new approach to successful bidding—with well-protected profit margins.

COMPARATIVE FIELD STUDY REVEALS HIGH PROFIT PRODUCTION OF WOOLDRIDGE—M-R-S ON DIFFICULT JOB

	WOOLDRIDGE—M-R-S Combination	Tractor-Scraper Combination "A"	Tractor-Scraper Combination "B"
Struck Capacity	34 cu. yds.	18 cu. yds.	18 cu. yds.
Trips per 50 minute hour	7.28	5.6	6.25
Loading time	1 min. 40 sec.	1 min. 34 sec.	1 min. 42 sec.
Complete cycle	6 min. 52 sec.	8 min. 54 sec.	8 min.
Production per 50 minute hour @ 80% struck capacity	198 cu. yds.	81 cu. yds.	90 cu. yds.
Production ratio based on 100% for minimum combination	244%	100%	111%

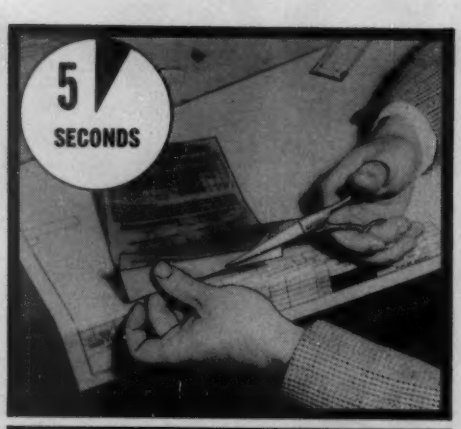
FOR THE COMPLETE BIG PROFIT STORY, CONTACT YOUR WOOLDRIDGE—M-R-S DEALER, OR WRITE DIRECT TO M-R-S OR WOOLDRIDGE TODAY!

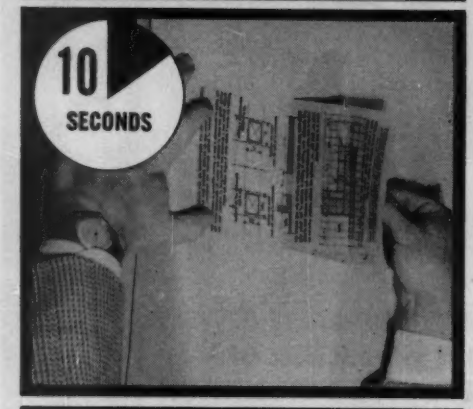
AND A WOOLDRIDGE—M-R-S SCRAPER FOR EVERY CAPACITY

SCRAPER MODEL	STRUCK, CU. YDS.	HEAPED, CU. YDS.
OS-300-B	34.0	41.0
OS-260-B	26.0	32.5
OS-200-B	20.0	26.0
OS-152-B	15.1	18.0
OS-90-B	12.2	15.0
OS-80-B	8.4	10.5

CCS WOOLDRIDGE

MANUFACTURING DIVISION
CONTINENTAL COPPER & STEEL INDUSTRIES, INC.
SUNNYVALE, CALIFORNIA, U.S.A.





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READER COMMENT

Public Interest Paramount

SIR—The fatal flaw in all American rules of practice for engineers is the omission of a clear-cut recognition of the precedence of the public interest over all manner of private interests.

In Australia, the Institution of Engineers has met this obligation handsomely when under the heading "Technical Evidence" it provides that:

> "A member shall, if called upon to give evidence on technical matters, be guided by the following principles:—
>
> (a) An engineer's responsibility to the community must at all times come before his responsibility to the profession and other engineers.
>
> (b) In matters of fact, an engineer should at no time be expected to shelter another engineer.
>
> (c) In matters of opinion, an engineer should take every care to avoid reflecting on the ability or good faith of other engineers."

As a matter of fact, in the absence of rules sustaining our engineering practitioners in rating the public interest as our prime concern, public confidence in our profession is actually weakened by elaborate codes of ethics—sometimes printed in colors for framing—such as have been adopted by ASCE and ASME. We should meet this issue of public versus private interests in all relationships or stop talking about ethical conduct.

MORRIS LLEWELLYN COOKE
New Hope, Pa.

Contract Work Superior

SIR—Many of our members have noted the story on street resurfacing in Minneapolis (ENR Oct. 13, 1955, p. 36). Our organization has been carrying on a crusade for years on "Contract Versus Force Account Work", and for your information, the job has been very tough. There are many arguments in favor of our action

(*Continued on page 10*)

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

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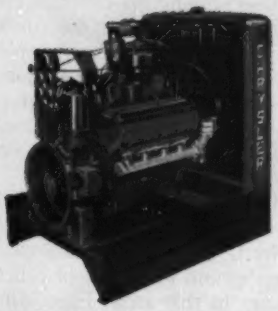
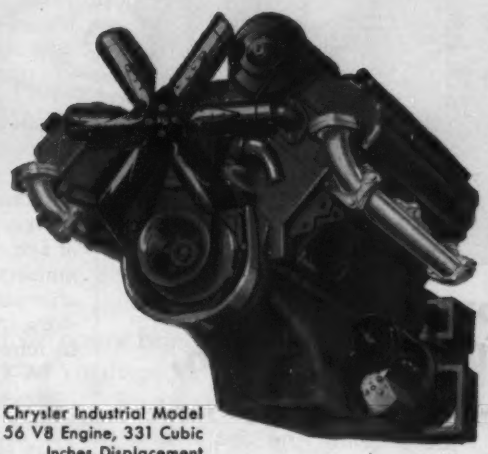
Check the specifications. Note the optional equipment which can be factory supplied or installed to meet the particular requirements of your equipment in the field. Whether equipped for Gasoline, Distillate Fuel, Propane or Natural Gas operation, Chrysler Industrial Engines offer definite advantages . . . performance, ease of maintenance, fast parts service, low initial and operating costs.

See the dealer nearest you, or write for complete information. ***Dept. 911, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***



Chrysler Open Power Units. The open power units for all engines include the complete engine, skid base, radiator, instruments and instrument panel, flywheel and flywheel housing. Open power units for V-8 Models Ind. 52 and 56 (pictured), include twenty-five gallon fuel tank.



Chrysler Industrial Model 56 V8 Engine, 331 Cubic Inches Displacement (Front End Chain Drive)

Chrysler Industrial Model 33 Engine, 265 Cubic Inches Displacement (Front End Gear Drive)

Chrysler Enclosed Power Units. The enclosed power units have the complete engine, fuel tank (Models Ind. 30, 31, 32 and 33—sixteen gallon. Models Ind. 52 and 56—twenty-five gallon), storage battery, instruments and instrument panel, flywheel, flywheel housing, skid base and completely enclosing sheet metal.

Optional Equipment—Chrysler Engines

- Chrysler Industrial Torque Converter
- Chrysler gyrol Fluid Coupling
- Three, Four or Five-Speed Transmission
- Twelve or Twenty-four Volt Electrical System
- Distillate, Propane or Natural Gas Burning Carburetor
- Over-Center Clutch and Power Take-Offs
- Vertical or Horizontal Magnetos
- Flexible Coupling for Truck-Type Flywheel
- Radio Shielding and Ignitors
- Heavy-Duty Oil Bath Air Cleaners
- Safety Switches (Low Oil Pressure, High Water Temperature)
- Corrosion or Fungus Resistant Electrical System

GENERAL SPECIFICATIONS — ALL MODELS

	Ind. 30	Ind. 31	Ind. 32	Ind. 33	Ind. 52	Ind. 56
No. of Cylinders	6	6	6	6	8	8
Type of Engine—4 Cycle	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Bore—Inches	3 1/4	3 1/4	3 7/8	3 7/8	3 7/8	3 13/16
Stroke—Inches	4 3/8	4 3/8	4 3/4	4 3/4	3 1/4	3 3/8
Displacement—Cu. In.	230	230	265	265	270	331
Compression Ratio	7.0	7.0	6.8	6.8	7.5	7.5
Valves—Arrangement	L	L	L	L	Vee	Vee
Pistons—No. Rings	4	4	4	4	3	3
Crankshaft—Bearings	4	4	4	4	5	5
Camshaft Drive	Silent Chain	Gear	Silent Chain	Gear	Silent Chain	Silent Chain
Camshaft—Bearings	4	4	4	4	5	5
Crankshaft—Bearing Diameter	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 3/8"	2 1/2"
Lubrication—Type	Press.	Press.	Press.	Press.	Press.	Press.
Lubrication—Type Oil Pump	Rotor	Rotor	Rotor	Rotor	Rotor	Rotor
Lubrication—Oil Capacity Qts.	5	5	5	5	5	5
Ignition—Battery Type	Yes	Yes	Yes	Yes	Yes	Yes
Spark Plug—Size	14 mm	14 mm	14 mm	14 mm	14 mm	14 mm
Starting—Elec. Type	6 Volt	6 Volt	6 Volt	6 Volt	6 Volt	6 Volt
Gen. Reg.—Full Voltage	45 Amps.	45 Amps.	45 Amps.	45 Amps.	45 Amps.	45 Amps.
Gen. Reg.—Full Voltage and Current Control	Yes	Yes	Yes	Yes	Yes	Yes
Carburetor—Type	Down-Draft	Down-Draft	Down-Draft	Down-Draft	Down-Draft	Down-Draft
Fuel Pump	Yes	Yes	Yes	Yes	Yes	Yes
Weight—Approx. (Lbs.)	575	610	740	760	591	845

Specifications subject to change without notice.

HORSEPOWER WITH A PEDIGREE

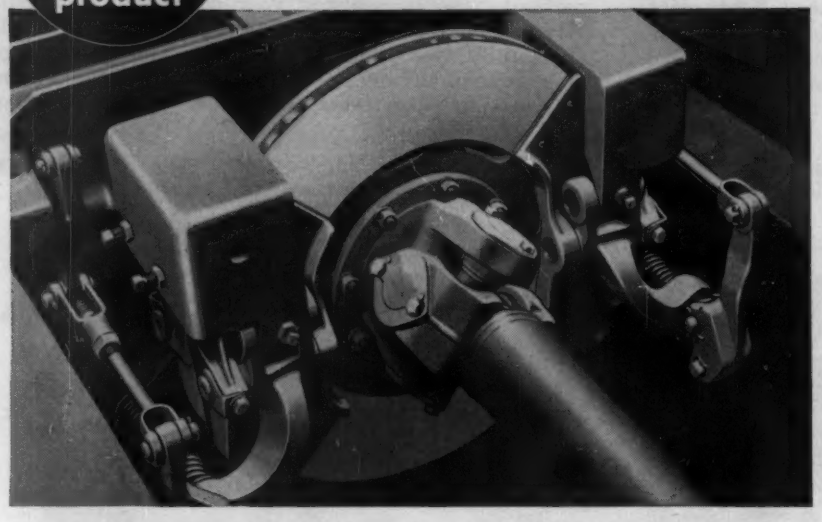
CHRYSLER INDUSTRIAL ENGINES

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

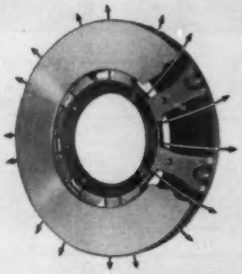
NEW "FIVE" SPEEDERS

an ACCO product

It Pays to Specify TRU-STOP Brakes



because they give you Real Emergency Braking...Smooth, Positive Stops...Safe Parking... and Lower Service Costs



Longer Lining Life

• The terrific heat generated in braking cuts lining life. TRU-STOPS quickly dissipate this heat. Most of the disc is exposed to the air even during braking. And a cooling jet of air circulates through the disc, prolongs lining life.

Real Emergency Braking. TRU-STOPS *are real emergency brakes—not just "parking brakes."* They serve as auxiliary brakes on long down-grades and can bring the vehicle to a smooth, quick stop if service brakes suddenly fail.

In fact, TRU-STOPS can do this and more. They can handle the vehicle with safety so it can be removed from the road.

Smooth, Positive Stops. Pressure is in direct proportion to the pull on the brake lever. There is no dangerous self-energizing or "over-braking."

Safe Parking. TRU-STOPS hold on grades—prevent "parking brake" accidents.

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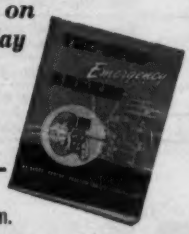
Specify TRU-STOPS for factory installation on your next vehicle.

This Booklet gives the complete story on TRU-STOP Brakes. Send for your copy today



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READER COMMENT

and when publications such as yours highlight force account jobs, we certainly intend to take exception.

Strong arguments have been presented by us that work by contract is and always has been the free enterprise system which we all know. It always results in a less expensive job —a quicker job and one which is always bonded and guaranteed to satisfactory completion.

Work done by contract expedites the job time-wise where local business people do not suffer nearly so much as they would if there were no time limit involved. Contract work guarantees this very important completion date, whereas force account work does not and in almost all cases never even enters the picture for consideration.

We would guess the time element in doing this work by the City of Minneapolis is in keeping with that of Los Angeles and hundreds of other municipalities in this area. Especially after noting the first paragraph of your story in column one, page 40, and to refresh your memory we quote:

"A 13-man crew made up of one paver operator, two roller operators, nine workmen and a foreman can lay about 400 tons of the asphaltic concrete per day. This covers about 400 ft of pavement 47-ft wide, or 800 ft of single course."

What a deal, and with so many other matters to fill the pages of your very fine weekly magazine.

LYNN BRADNER
Executive Secretary,
Excavating & Grading
Contractors Assn., Inc.
Los Angeles, Calif.

CALENDAR

American Concrete Pipe Association, short course school of instruction, Chase Hotel, St. Louis, Mo., Nov. 14-16.

American Association of State Highway Officials, annual meeting, Jung Hotel, New Orleans, La., Dec. 4-9.

Nuclear Engineering and Science Congress, sponsored by the Engineers Joint Council, Public Auditorium, Cleveland, O., Dec. 12-16.

American Road Builders' Association, annual convention, Miami Beach Auditorium, Miami Beach, Fla., Jan. 11-14.

Highway Research Board, annual meeting, National Research Council Building, Washington, D. C., Jan. 16-20.

American Society of Heating and Air-Conditioning Engineers, annual meeting, Sheraton-Gibson Hotel, Cincinnati, O., Jan. 23-25.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan 29-Feb. 2.

NEW "EUC" SCRAPERS

THE S-12

12 yds. struck...
14 yds. at 3:1 slope . . . 16 yds. heaped at 1:1 . . . 26.5 x 25 tires . . . 218 h.p. . . . top speed loaded of 28 mph. . . . 9′ 6″ width of cut . . . makes non-stop 180° turn in 31′.

AND THE S-18

18 yds. struck...
21 yds. heaped at 3:1 slope . . . 24 yds. heaped at 1:1 . . . 27.00 x 33 tires . . . 300 h.p. . . . Torqmatic Drive with torque converter and semi-automatic transmission . . . top speed of 20 mph with full payload . . . 10′ width of cut . . . makes non-stop 180° turn in only 36′.

These two new Euclid Scrapers bring you a new high in scraper performance and low cost yardage. Both incorporate the advanced design that have made "Euc" Scrapers the fastest growing line in the industry. With lever action and 4 section cutting blades, and 16 to 18 h.p. per yd. of capacity, they load easy and travel fast. The entire power train of the S-12 and the S-18 is designed for exceptionally good accessibility.

Before you decide on any scraper for your present or future work, check the money saving features of these "Eucs". Your Euclid dealer will be glad to give you facts and figures that show why so many users have found that ***Euclids are your best investment.***

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GENERAL MOTORS CORPORATION
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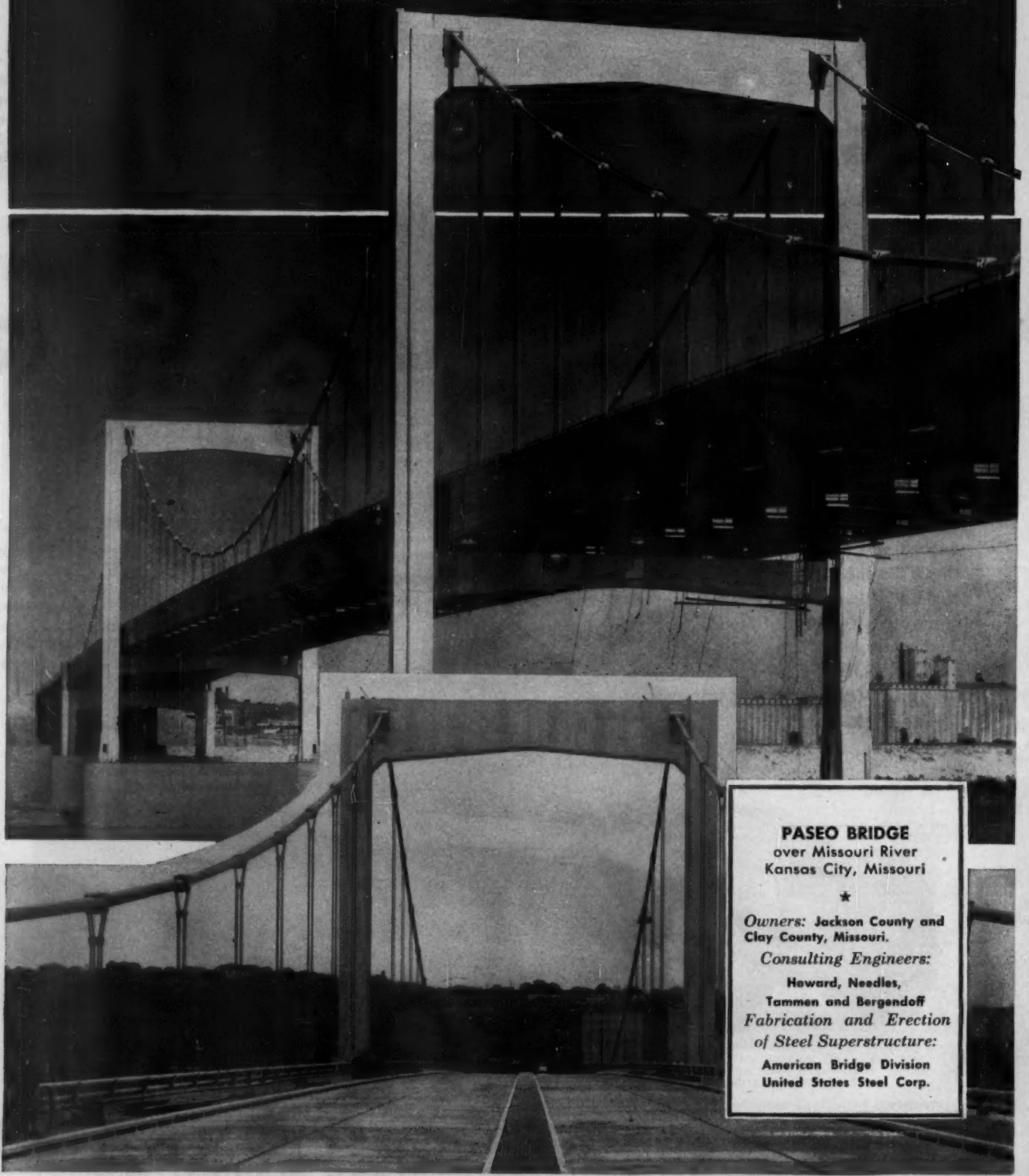
$5,000,000 Superstructure for WORLD'S LONGEST SELF-



PASEO BRIDGE
over Missouri River
Kansas City, Missouri

★

Owners: **Jackson County and Clay County, Missouri.**

Consulting Engineers:
Howard, Needles, Tammen and Bergendoff

Fabrication and Erection of Steel Superstructure:
American Bridge Division United States Steel Corp.

ANCHORED SUSPENSION BRIDGE

Fabricated and Erected by

AMERICAN BRIDGE

The 1,825-ft. Paseo Bridge across the Missouri River at Kansas City, Mo., is the longest self-anchored suspension bridge in existence.

This handsome four-lane bridge with its two 26-ft. roadways features a 616-ft. main span and two side spans of 308 ft. each. Approach spans are continuous deck plate girders, measuring 174 ft. and 90 ft. at the south end of the bridge, and 219 ft. and 110 ft. at the north end. Clearance above high water at the center is 55 ft. Supporting towers are 136 ft. high. The diameter of the wrapped cables is 12 inches.

5,885 tons of structural steel went into this big bridge, all of which was fabricated and erected by American Bridge.

While the Paseo Bridge does establish a world's record . . . to the men who built it, it is just another job . . . done in the usual skilled way. If you have a bridge problem, we suggest that you call in American Bridge, the world's largest and best-known fabricator and erector of steel structures. Its ten modern fabricating plants and tiptop erecting facilities, and technically trained personnel can be relied upon to do the job right—regardless of size or complexity.

Suspension cable as seen from deck. Cables contain thirty-one 1-13/16-in. and six 1¼-in. preformed strands. They are wrapped to give a diameter of 12 inches.

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.

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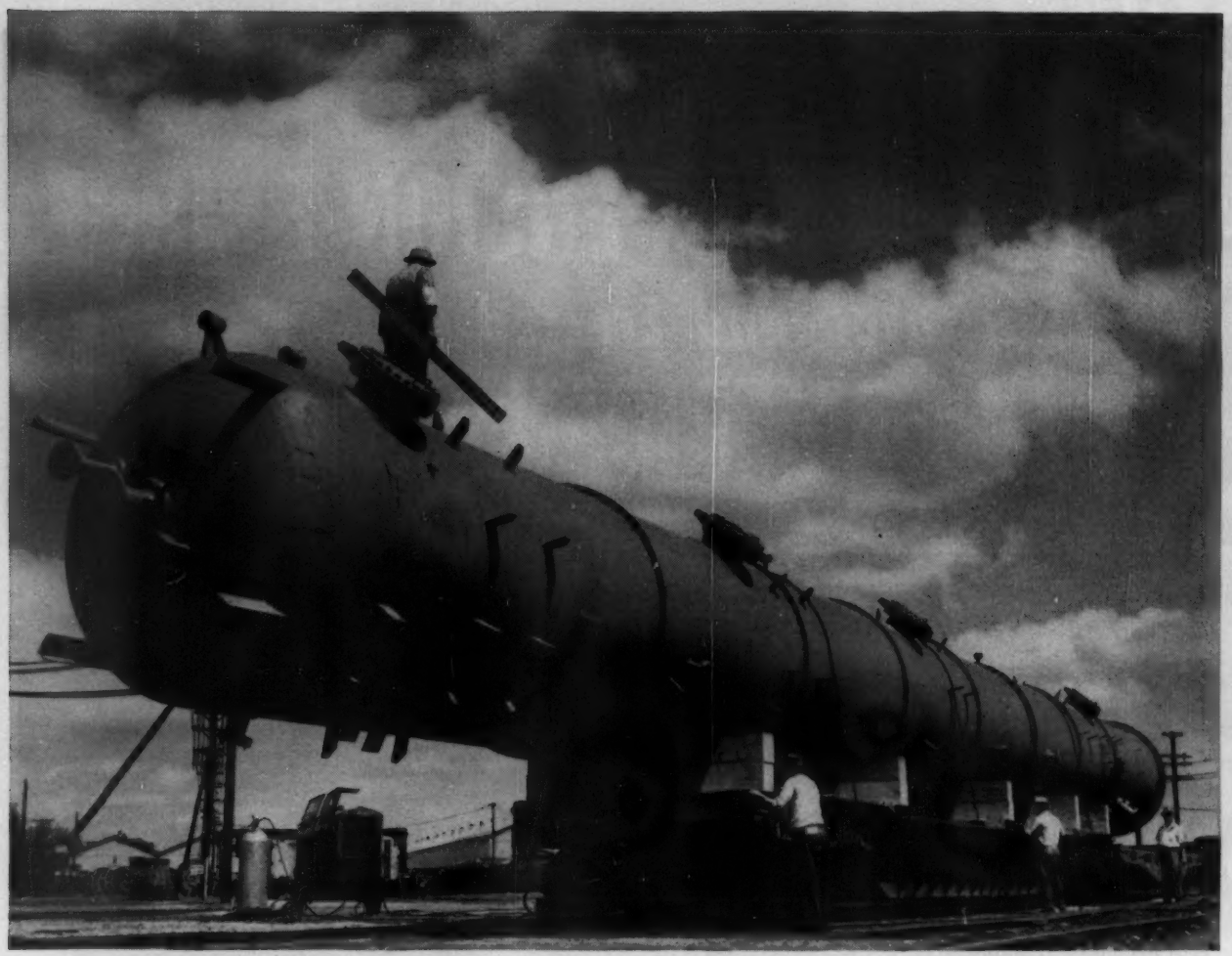
AMERICAN BRIDGE

INTERESTING MOTION PICTURES AVAILABLE—"Building for the Nations" and "The Suspension Bridge," two entertaining and educational films, are now available without charge to business, fraternal, and civic organizations, churches, schools and colleges. Write to Pittsburgh office for bookings.

UNITED STATES STEEL



The 110'6" debutanizer shown above and the 150-ton unit (below), a 3-stage axial flow compressor, are typical Newport News products. Whether you need a hydraulic turbine, vacuum tanks or penstocks . . . bridge caissons, digesters or dryer rolls . . . you can command the services of Newport News for units of about any size or shape.

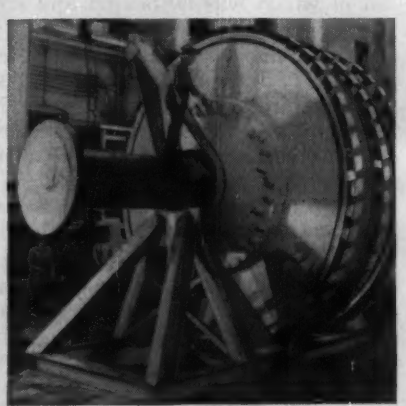
Newport News builds wide variety of large units

ALMOST ANY TYPE of heavy equipment can be built by Newport News.

And the reason? Specialized production techniques for one thing. You get the benefit of plant methods and equipment developed as a result of Newport News' seven decades of experience. Seven decades fabricating millions of tons of steel . . . carbon, corrosion-resistant alloy, clad and other special steels.

Moreover, Newport News' plant provides unsurpassed facilities. More than 225 acres in area, it comprises vast steel fabricating shops, five huge machine shops, acres of pattern shops and foundries. It includes forge and die shops, heat treating furnaces and allied equipment, along with complete modern test apparatus.

But most important of all . . . it is the high integration of skill and production facilities that enables Newport News to build large units fast . . . to save valuable time. Let us bid on your present or future projects. Write today for your copy of our illustrated booklet "Facilities and Products."



Engineers — Desirable positions available at Newport News for Designers and Engineers in many categories. Address inquiries to Employment Manager.

Newport News

Shipbuilding and Dry Dock Company
Newport News, Virginia

Why 4 Reverse Speeds

in a motor grader?

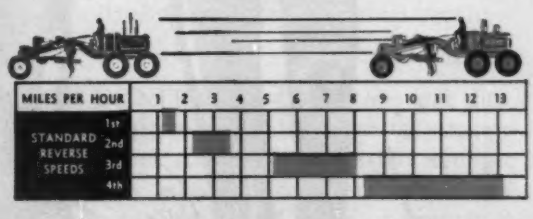
Try an ADAMS and see!

● Adams 4 reverse speeds (instead of the usual 2) give you a more flexible speed range for back-up operations—up to 13 mph. This pays big dividends when shuttling back and forth on short stretches, working between forms, etc. Your Adams backs up to starting points quickly, economically—saves production time.

This is only one of the many *plus* advantages that make Adams Motor Graders the most advanced and finest-performing on the market. Others include: 8 Forward Speeds (up to 26 mph.)—Optional Creeper Speeds (low as ¼ mph.)—Easy-Shifting, Constant-Mesh Transmission—Rubber-Mounted Engines—Dual-Braking System.

Adams Motor Graders are available in four popular models, 75 to 140 hp. Ask your nearby Adams dealer to show you the size best adapted to your needs—show you how it can do better work, faster, at lower cost than any grader you've ever owned.

Only ADAMS has 4 Reverse Speeds



Adams 4 reverse speeds range from 1.2 to 13.2 mph.—save you valuable time in shuttling back and forth on short stretches, backing to buck snow drifts, etc.

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Make your next motor grader an **ADAMS**

IT'S NOT THE INITIAL COST

it's the upkeep...

Competitive bidding on water works projects has brought the price of comparable pipes of different specified materials to a nearly common level. Today, the important consideration for the buyer is not so much the first cost as the maintenance charges which continue throughout the life of the pipeline.

In any such comparison, the superiority of LOCK JOINT CONCRETE PRESSURE PIPE is demonstrated by the experience of hundreds of municipalities. One of the country's largest industrial cities, for example, reports that during 1954 NOT ONE CENT was spent for maintenance or repair of the more than 14,000,000 inch feet of Lock Joint Concrete Pressure Pipe in its water works system.

Your city, too, can virtually eliminate maintenance expense, and save many times the initial installation cost with Lock Joint Concrete Pressure Pipe.

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Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich.
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Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

ENGINEERING NEWS-RECORD

Vol. 155, No. 19 November 10, 1955

Number of copies printed in this issue: 69,664

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THE CONSTRUCTION WEEK

THE SECOND ROUND—With the opening of Congress only two months away, groups hoping to influence the new attempt to write legislation for a stepped up federal highway aid program are busy formulating their positions.

The American Road Builders Association has come out with a new statement of principles it feels the legislation should embody (Page 25).

A new Governors' advisory group on highways held its first session this week (Page 32) and soon found that it was in for a tough time if it hopes to reach an agreed position. As with Congress last year, the Governors found they were far apart on financing.

COUNTY ENGINEERS SPEAK UP—A preliminary engineering report on Ohio's proposed Turnpike No. 2 (Cincinnati-Conneaut) recommends a minimum right-of-way of 300 ft, as compared to 200 ft on the newly-opened toll road (Page 24). And, ironically, the report comes out just as a group of county engineers, representing 14 counties through which the proposed 'pike would run, are citing tax losses resulting from removal of 30 acres per mile of right-of-way on Turnpike No. 1. They make the point in a bill of particulars on the "extra costs" imposed on counties by the newly-opened turnpike—together with a number of features they'd like to see incorporated in the proposed turnpike to give them a break.

SEARCH FOR STABILITY—Baltimore was in the labor spotlight this week as another attempt was made to apply the "Chicago plan" (featuring use of standardized labor contracts and local arbitration machinery) to collective bargaining negotiations—this time in the plumbing trade (Page 82).

Although several cities have adopted versions of the "Chicago plan" since it was introduced back in 1926, any new application is bound to arouse charges that it is an unlawful attack on open shop construction.

SEMINAR ON CONTRACTS—Contractors and their lawyers who may get baffled at times by the intricate provisions of federal construction contracts can get some down-to-earth answers to their problems if they can make a trip to New York City for a seminar at Fordham University Law School on Friday afternoon and Saturday morning, Dec. 2 and 3.

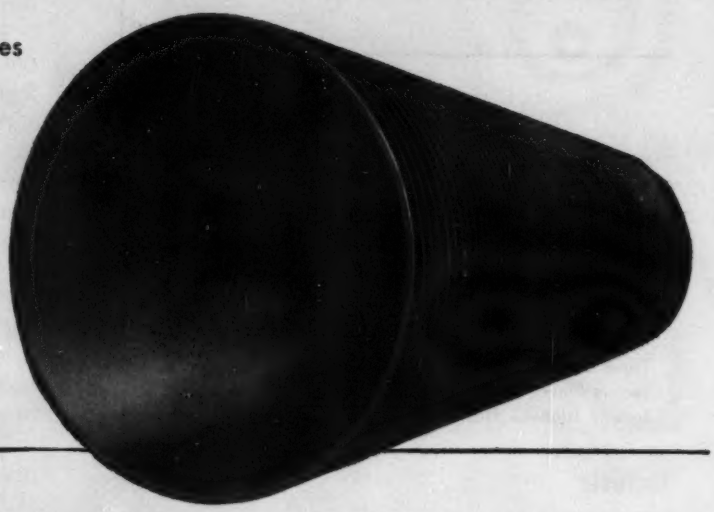
Top government attorneys and contract law specialists in private practice will be on hand to explain such bothersome matters as "extra work" and "changed conditions" clauses, and liability for extra costs and delays. The program, probably the first of its kind, is being sponsored by Fordham University Law School and the Empire State Chapter of the Federal Bar Assoc. (Inquiries can be addressed to the Fordham-Federal Bar Association Institute, 302 Broadway, New York 7, N. Y.)

NOW You Can Meet Your Sewer Pipe Requirements **BEST** from **EVERY ANGLE**

Armco **SMOOTH-FLO** Sewer Pipe Combines

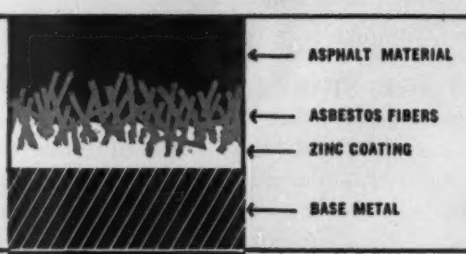
Top Flow Capacity
Proved Material Durability
Corrugated Metal Strength
Watertightness

Here in a single structure—Armco SMOOTH-FLO Sewer Pipe—you can get all the qualities you need for efficient sewer design and performance.



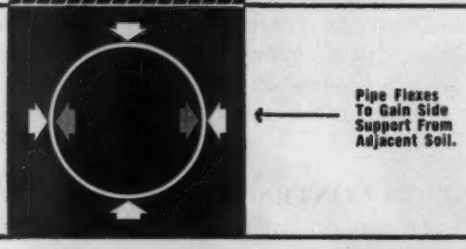
TOP FLOW CAPACITY

A centrifugally applied bituminous lining provides top flow capacity. The diagram shows how the full lining fills the corrugations to provide smooth, efficient interior.



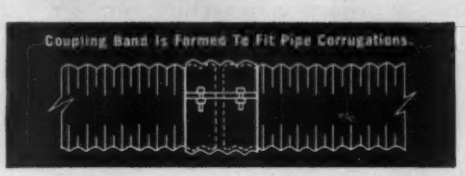
PROVED MATERIAL DURABILITY

The special-grade bituminous lining withstands heat or cold without damage. The base metal itself has extra protection from corrosion. Millions of asbestos fibers are embedded in the zinc coating and sealed with a special saturant. The result is Armco ASBESTOS-BONDED, a material that has been proved in the most severe sewer service.



CORRUGATED METAL STRENGTH

Armco SMOOTH-FLO Sewer Pipe has the flexible strength of corrugated metal design. It deflects under load and builds up side support from the adjacent soil. Thus loads are distributed around the entire periphery, eliminating the danger of cracking, breaking or crushing.



STRONG, TIGHT JOINTS

Bolted band connectors make joints strong and tight. There is no silting or entrance of ground water to overload sewers and treatment plants. Strong joints also mean good alignment year after year.

Write us for more data, prices and delivery time. Armco Drainage & Metal Products, Inc., 6225 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO®

Armco Smooth-Flo Sewer Pipe

WASHINGTON OBSERVER

Legislation for 1956 is shaping up both in Congress and in the Administration.

The outlook is for a speedy session so that Congressmen can get away to campaign, and go to the Presidential conventions. The major issues are already outlined, such as public works, school construction, and highways. But details on the controversial programs are still being worked out. And the outlook is for basic conflict on the vote-getting legislation.

•

Hell's Canyon fighting will be stormy—The Democrats are threatening to cancel the Federal Power Commission license to the Idaho Power Co. for building three low dams on the Snake River. Legislation already has moved through the Senate Interior Subcommittee to authorize the high dam. New effort will be made for a direct cancellation.

Upper Colorado water storage is ready for House action, having already passed the Senate. The Administration will put a new push behind the program, as well as recommending again construction of the Frying-Pan Arkansas diversion project in Colorado.

The John Day "partnership" project, started late last session, is getting Administration support. The program would have private utilities and local public utilities finance the building of the dams in exchange for 50 years of power output. The Corps of Engineers would build it, and the government would retain title.

•

Changes in the Davis-Bacon government construction contracts law are up again. Big change being sought involves the eight-hour law. Unions and the Administration agree that the law should be changed to give a worker overtime after 40 hours a week as well as after eight hours a day. Presently, a contractor can work a crew straight time seven days a week.

Labor Secretary Mitchell is behind these changes in the Taft-Hartley Law: Requiring a worker to join the union holding union shop contract after seven days on the job, rather than the present 30 days. The unions still want a prehiring requirement. Mitchell also will go for easing of the secondary boycott provision in the present law.

Control of union welfare funds will be considered, and the chances are some form of government overseeing will be voted. Best bet is a requirement that welfare fund expenditures and receipts be made public.

•

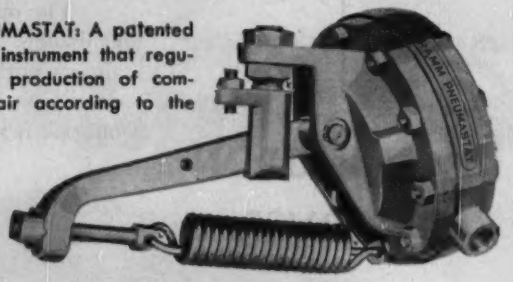
A new highway program will be voted. The present law for federal grants needs to be extended anyway. But there will be another hot debate over how to finance the "grand plan" for highways left stranded at the last session.

School construction, bogged down last year, will get a new impetus after the President's White House Conference on Education is held later this month. Consensus is that some kind of new approach will have to be conceived—the Administration and the Democrats are at odds over the coverage and spending, and passage of a law depends on some new formula.

Another big program of military construction is fairly certain. The present program is not yet completed, and the new reserve law will require additional building all across the country.

What makes SCHRAMM Compressors So Economical *

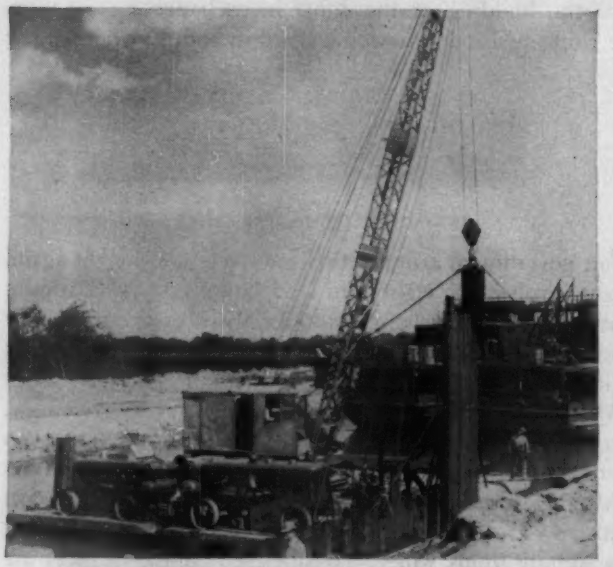
* PNEUMASTAT: A patented Schramm instrument that regulates the production of compressed air according to the demand.



SCHRAMM Unistage Air Compressors have low maintenance and long life... resulting in savings to you... because:

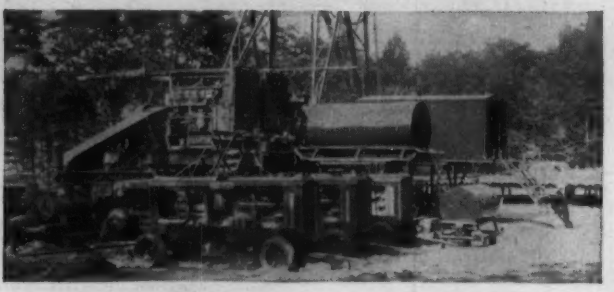
1. Schramm mechanically operated poppet-type intake valves last as long as the compressor.
2. Schramm multiple cylinder construction means less work for each discharge valve.
3. Schramm engines are operated at the speed for which they are designed and not overspeeded to 1800 r.p.m.

Records of Schramm users prove this!



Two Unistage Schramm 315 compressors operating as a unit (630 cfm) furnishing air for pile driving. When not used for pile driving, compressors are available for separate jobs. Pneumastat* controlled Schramms can be operated as a battery without special arrangement and each unit will carry its share of the load.

Schramm Unistage 600 is ideal for operating two wagon drills. The Pneumastat* controls air delivery to exact requirements of tools used.



3 Unistage 600 Schramms replaced rotary compressors on gas well and drilling job because of the ability of the Schramms to produce air at high pressures for dewatering and breaking stoppages.

Schramm air compressors are preferred for Guniting—because of the constant pressure (freedom from variation) and ability to operate any desired pressure for long periods without maintenance.

Schramm compressors replace rotaries on sand blast jobs because of their ability to operate continuously at 125 p.s.i.

Write today for free informative booklet,
"Piston vs Rotary Air Compressors."

Schramm, Inc.

MANUFACTURERS OF AIR COMPRESSORS

620 North Garfield Avenue • West Chester • Pennsylvania

Failures Spur Quick ACI Code Change

- **Cause of cracking of rigid frame bents in Air Force warehouses still uncertain but various studies encouraged ACI to act now on the revision of diagonal tension requirements**
- **Investigators also see as possible causes frozen expansion joints, unexplained volume changes in concrete, as well as the omission of stirrups and too-short longitudinal steel**

Steps were initiated to revise the requirements for diagonal tension in the American Concrete Institute Building Code at a regional meeting in Atlanta, Ga., last week. The revisions are intended to correct deficiencies such as those that might have caused cracking of rigid-frame bents in Air Force warehouses completed or under construction by the Army Engineers. The amended standards are now being printed for general distribution next month.

Collapse on Aug. 17 of one span of a rigid-frame warehouse at Wilkins Air Force Base, Shelby, Ohio (ENR Aug. 25, p. 23), prompted an investigation. The findings, added to doubts raised by recent research tests as to the amount of tension unreinforced concrete should be permitted to carry, led to fast action in revising pertinent sections of the ACI code, relating principally to diagonal tension and bond.

Framing of the warehouse was built in accordance with a standard design prepared by L. P. Kooken & Co., architects-engineers, Baltimore, and adapted for different sites by other engineers. The Army Engineers have warehouses of the same design completed or under construction at 20 locations. Construction of the uncompleted warehouses was suspended immediately after the failure at Wilkins, pending investigation.

In general, the rigid-frame bents have a total length of 400 ft. They are composed of six bays with an expansion joint near mid-length. The bearing consists of a flat bottom steel plate on which rests a curved top steel plate. In some cases, the plates were tack-welded together during construction. End columns are relatively massive.

Inspection of several of the warehouses reveals that serious cracks opened, during construction or up to about two years later, in regions of low bending moment near inflection points. Top of cracks are found near the points where the negative-moment steel near columns is substantially reduced in area or stopped completely.

According to some investigators, cracks generally follow diagonal planes, which make angles less than 45 deg with the vertical. In some cases, cracks may have started at mid-depth and progressed either up or down.

During the construction program, the frame design was improved by revisions made by the Army Engineers.

Investigators found that the quality of the concrete and reinforcing steel was generally in accordance with specifications. Type of aggregates, sequence of placing, and methods of curing varied widely from base to base and even from building to building at the same base. The fact that similar cracking occurred under widely varying construction conditions encouraged the investigators to reach the conclusion "that the failures and cracking cannot be attributed to 'errors' in construction."

Taken together with current studies on diagonal tension in concrete beams, these failures gave the ACI committee on building code requirements reason to believe that the design criteria for shear, as given in the current ACI code, are inadequate.

There was also evidence that the expansion joint bearings were frozen together, developing high forces in the girders. Cracks were found at interior corner of supports and at the face of exterior columns, starting from the bottom of the girder.

A time effect, in addition, must be taken into account, since the cracks did not develop until a considerable time after the full deck load was in position. Volume changes due to shrinkage, creep and thermal effects may be involved.

One investigator called attention to the possibility that the coefficient of expansion of concrete might be larger than the coefficient of contraction. This was offered as one possible explanation of the phenomena.

Design of the warehouses admittedly is in accord with current practice under the 1951 ACI code. Lack of test data prevented the code writers in 1951 from covering all of the conditions that arise in current design practice.

Designers have had to go beyond available research information and extrapolate known data in accordance with accepted professional interpretation of the code. The code revisions will attempt to close these gaps in the light of what has been learned from the Air Force warehouses and other structures, as well as from laboratory research.

To determine the cause and remedy for the Wilkins failure, and the cracking of girders at some other locations, the Army's Chief of Engineers, Lt. Gen. Samuel D. Sturgis, Jr., enlisted the aid of Ammann and Whitney, New York City engineering firm.

An interim report from the investigating engineers last month made two significant comments. The first cleared the contractors and field forces. Even more important was the second conclusion: "The major contributing cause for what appears an inadequate design is therefore attributed to the deficency of current practice and the provisions of the governing building code with respect to the required areas of web reinforcing and extension of longitudinal reinforcement."

(*Continued on page 22*)

. . . Failures spur ACI code change

Charles S. Whitney, firm partner, makes clear that this finding applies primarily to continuous rectangular beams and does not apply to T-beams with integral slabs.

Whitney acted quickly to bring up the matter of code revision. As chairman of ACI Committee 326 on Shear and Diagonal Tension, a joint committee of ACI and the American Society of Civil Engineers, he called the group together during the annual ASCE meeting in New York last month. The committee promptly recommended the revisions to the parent body, ACI Committee 318 on Building Code Requirements, which approved the revisions at its Atlanta meeting.

Ammann and Whitney also recommended changes in the basic design of the rigid frame bents for the Air Force warehouses. A second independent group of consulting engineers consisting of Robert J. Hansen, of Massachusetts Institute of Technology and Nathan M. Newmark and Chester P. Siess of the University of Illinois, concurred in the recommendations.

The design revisions have been adopted and sent to the field offices of the Army Engineers. Construction has been resumed on all warehouses that were under way at the time the investigation started.

Design changes consist principally of a better bar arrangement, additional web reinforcing, staggering of splices, addition of steel beyond points of contra-flexure and an improved expansion joint bearing plant. (The bents, of 67-ft span, are continuous on both sides of an expansion joint at about the midpoint of a 400-ft warehouse dimension.)

Remedial measures to take care of completed warehouses have been agreed upon with the two engineering groups. Field offices are expected to receive instructions on how to carry out these remedies within two weeks.

Since the Wilkins failure, shoring has been in place under the girders of completed warehouses and under any girders that showed serious cracking on projects still under construction.

• **Comprehensive investigation**—To assure comprehensive action on the failure, Gen. Sturgis has called together a group of the Corps' senior engineers as well as experts invited from the Air Force and the U.S. Bureau of Standards. This board, headed by Brig. Gen. Theron D. Weaver, will review the whole history of the failure and determine where additional work is needed.

A number of laboratories reportedly started research programs on conditions such as showed up in the warehouse bents even before any cracking occurred in these structures. Because of the importance of the failure at Wilkins Air Force Base, the Portland Cement Association has decided to construct and load test a model of the type of girder that failed. Results will be studied by the Army Engineers' consultants in developing their final findings and recommendations.

A final report on the warehouse failures may be issued by Ammann and Whitney before the end of this month.

Russians Go Back With Ideas and House

The visiting Russian delegation of housing experts wound up its fast one-month tour of U.S. projects last week with the statement that they had learned much during their visit but that it would be principles rather than specific applications of American practice which they would carry back to adapt to conditions in their own country.

Lift-slab construction was the building method that most impressed the delegation of 10 Soviet officials. For use in multi-story construction that the Russian government employs almost entirely to house its people and for other purposes, the lift-slab method will get close attention of the delegation.

In the opinion of the visitors, lift-slab offers a safer and more economical procedure than other methods now in use, as the head of the delegation, I. K. Kozuilia, U.S.S.R. Minister of Urban and Rural Construction, said last week at a farewell public appearance before a National Press Club luncheon.

What the Russians missed most on their U.S. trip was the use of large factory-fabricated concrete slabs which Kozuilia said they employ widely in weights up to 1½ tons or so for the walls of buildings as much as 12 stories high. He was not referring to tilt-up construction, which the visitors had observed, but to use of large wall slabs hoisted into place. The delegates regretted that they had not had a chance to see U.S. methods of building with prefabricated and prestressed concrete units, which Kozuilia said the Russians are putting to increasing use.

In American houses, the visitors were impressed by the shift to one-story homes, totally different from the multi-story housing built by the state in the U.S.S.R. Noting the change, Kozuilia said that American architects in 1945-47 had told him they were building two-story houses because they were 15% to 20% cheaper than single story. He has yet to get a convincing explanation of why the American people now are spending more money to build ramblers, he declared.

The Russian housing experts pulled a surprise when they purchased a model home displayed by Oddstad Homes in San Bruno, Calif. The Russians wanted the house complete with furniture. Price quoted, FOB San Francisco docks: $8,000 for the house; $4,000 for the furniture.

The house is a two-story hillside home with three bedrooms, two baths, living-dining room and kitchen located on the upper floor. The lower floor is a full basement and a two-car garage. The house will be shipped knocked down. Wall and floors will be made up in panels. Roof trusses will be assembled. Roof sheathing and hardwood flooring will be sent in bulk. Plumbing will be fabricated in minor assemblies. Furniture and fixtures will be shipped in crates. Shop drawings will be sent to the Russians to show how the pieces fit together—but no technician will go to Russia to help with the actual assembly of the house.

What do the Russians intend to do with a U.S. model house? They plan to set it up in a trade fair in Moscow. American housing experts may get a look at the transplanted house in the near future. The National Association of Home Builders, which acted as host to the Russians on this tour, disclosed that an invitation has been extended and accepted for a return visit by a group of American experts.

Kozuilia, head of the Russian delegation, said the Russians hope to show the visiting Americans much of interest both in engineering methods and in organization of building operations. Date of the return visit was not announced.

FPC Authorizes Two Dams

The Federal Power Commission last week authorized Public Utility District No. 2 of Grant County, Wash., to build the $161-million Priest Rapids Dam and the $188-million Wanapum Dam on the Columbia River. The two dams will have a combined initial generating capacity of 1,170,000 kw.

↑Rough terrain such as this had to be overcome in . . .

. . . Laying the pipeline that eventually will carry . . . →

Water for Air Academy

Sharp variations in elevation and rocky terrain were conquered by pipelayers in building 44,275 ft of 24-in. water line down the slopes of Pikes Peak to the U. S. Air Force Academy site, 13 mi north of Colorado Springs, Colo.

On steep slopes, two tractors were used to swing the 40-ft sections of steel pipe into the ditch that had been blasted out of the rock formations. The entire ditch was wagon drilled and shot.

Bel-Aire Pipeline Contractors, Inc., of Colorado, had contracts to build the water supply pipeline in two sections. In addition, Northwood Construction Co. drove a 9-ft tunnel 4,000 ft long through solid rock to carry the line under the Rampart Range Road. The Wade Lahr Construction Co. also drilled a 371 ft long tunnel to bring the line into the actual Academy site.

The line, built for the city of Colorado Springs, will carry 15 mgd with 5 mgd going to the Academy and the rest to the city.

Typical of rock cuts involved in the construction of this line was one in which 9,260 cu yds of rock were excavated in cutting 10,800 ft of ditch.

First section of the line was 33,475 ft from Crystal Creek reservoir on the north slopes of Pikes Peak to Northfield Reservoir No. 4. It was part of this line that was tunneled under the Rampart Range Road. The line leaves Crystal Creek Reservoir at an elevation of 9,150 ft and in 3,000 ft of lateral travel, it drops to an elevation of 7,950 ft. The line hits a low point of 7,560 ft before it goes back up the other side of the valley to an elevation of 9,000 ft, where it enters the tunnel.

On the steep slopes, contractors used a large tractor with a tail-end winch to hold a smaller tractor with sideboom to move the pipe into the ditch. This arrangement saved the expense of an aerial tram, Project Engineer Robert Yant explained.

The 40-ft sections of pipe varied in weight from 77 to 100 pounds per ft. Pressures vary from 800 psi to 300 psi due to pressure head variance at different elevations.

On the final 10,800 ft section—from Northfield Reservoir No. 4 to the Academy site—contractors built an access road 20 ft wide that also served as the pipeline right of way. The pipe was laid two feet below the road surface. This road will be used regularly by waterworks personnel traveling between the reservoir site and the Academy.

Engineers Study 155 Sites For Alaska Power Projects

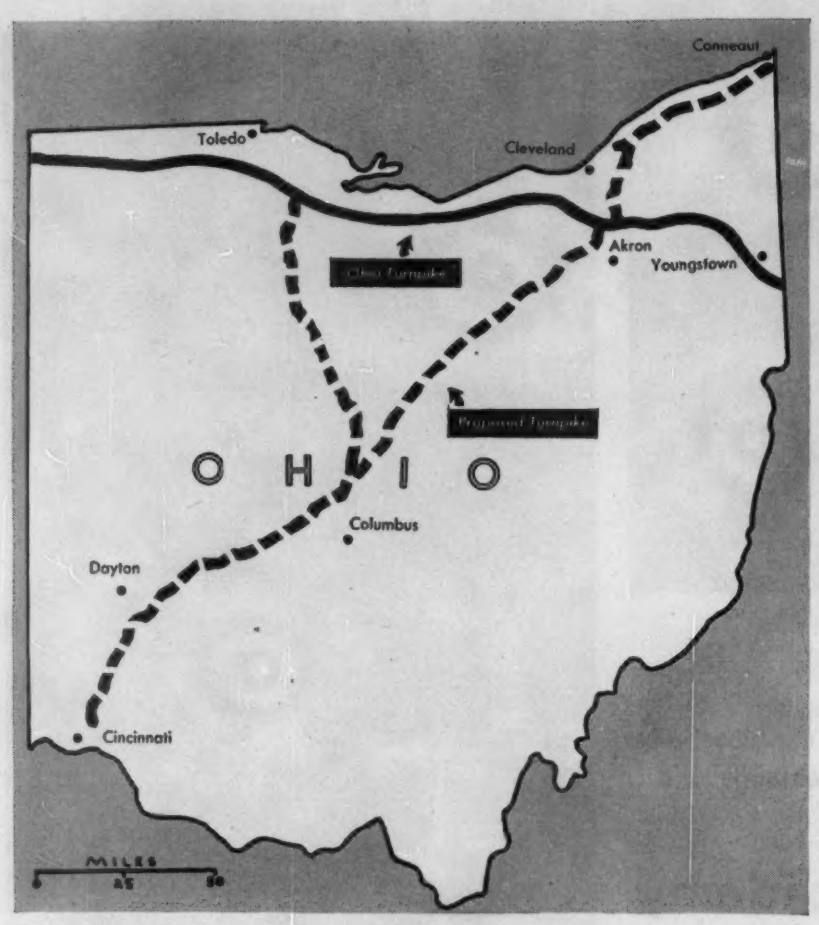
The Alaska District of the Army Engineers has completed preliminary studies of 155 power sites in the territory, according to Col. Carl Y. Farrell, district engineer.

These projects would develop at least 4,600,000 kw of industrial power, Colonel Farrell told a Senate committee in Anchorage.

Most ambitious of the proposed projects is one calling for full hydroelectric development of the main stem of the Yukon River. This would entail dams at Ruby, Rampart Canyon, Circle, Woodchopper, and at a site near the Canadian boundary.

Tailwater discharge on each of these dams would be direct into the next dam downstream, affording an opportunity for surface transportation of about 760 river miles in Alaska and Canada. If navigation locks proved unfeasible, suitable cargo exchange facilities could be provided at nominal cost, Colonel Farrell said.

On the Kuskokwim River, a dam at Crooked Creek would produce about 800,000 kw of industrial power and provide a reasonably stabilized channel below the dam to Bethel.



Engineers Report on Second Ohio 'Pike

Most design features will match those of first toll road but right-of-way would be increased to 300 ft; paving material won't be decided for another month

Ohio's proposed Turnpike No. 2, a $575-million twin ribbon of highway between Cincinnati and Conneaut, with a Toledo-Columbus spur, will incorporate all of the safety features of the state's first toll road (ENR Sept. 29, p. 71).

And, the 399-mi project may outdo the present turnpike in at least one respect. A preliminary engineering report submitted by the Baltimore consulting firm of J. E. Greiner Co. recommends a minimum right-of-way of 300 ft for the proposed turnpike. The existing toll road has a minimum right-of-way of 200 ft.

The preliminary report also recommends:

- Maximum upgrades of 2%.
- Maximum downgrades of 3.14%.
- Maximum curves of not more than 2½ deg.

These specifications are designed to assure visibility of at least 900 ft at all times. They are identical with specifications that were drawn up for the initial toll road.

The new superhighway will be a limited access road with no grade crossing or traffic lights. Acceleration and deceleration lanes will be provided at interchanges and service plazas.

Twin bridges and twin underpasses will carry turnpike traffic over or under streams, highways, railroads and other obstructions.

The Greiner plan envisions two 24-ft highways paralleling each other in a northeast-southeast direction across the state (see map) with a north-south spur. Each of these opposing lanes of traffic would have a 10-ft outside shoulder and an 8-ft inside shoulder. This was also a design feature of the first toll roads.

The Ohio Highway Department will rule on the feasibility of the big project only after considering final reports from Greiner and from Coverdale & Colpitts, of New York. The latter firm is making a detailed traffic and revenue study, together with an estimate of operating and maintenance costs.

By the time these final reports are received, presumably before Dec. 1, Gov. Frank J. Lausche will have determined the exact route. In a recent conference with Greiner representatives, the governor asked that they consider "valid objections" to tentative routing and make necessary corrections. These changes, if any, are expected to be minor.

The Ohio Turnpike Commission will be responsible for letting of contracts and supervision of construction. The record highway issue will be underwritten by a national group of investment firms.

• County Objections

Preparations for launching Ohio's second turnpike project have stirred up a strong reaction from a score of Ohio county engineers. This group—representing 14 of the counties through which the new turnpike will pass—wants to reduce what it terms "extra curricular turnpike costs" to counties.

The engineers cite the case of counties running along Turnpike No. 1. These counties had to meet the extra costs of building drainage facilities and access roads. In addition, they reported tax losses from removal of 30 acres per mile of right-of-way from the tax duplicate as well as from depreciation of land values where fill dirt had been removed.

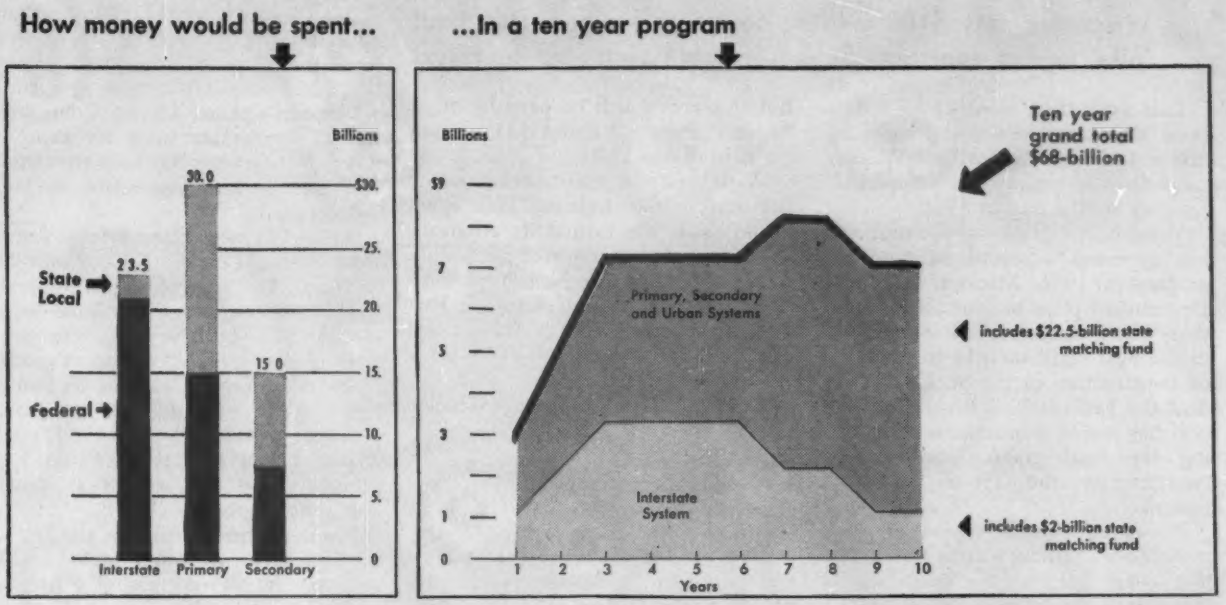
Counties along the new turnpike route propose three specific innovations to keep extra costs down—and they have taken their ideas directly to Gov. Frank J. Lausche.

This is what they suggest:

- The Turnpike Commission should build wider, flatter bridges to carry rural roads over the toll highway. The county engineers say that steep, narrow bridges over Turnpike No. 1 are unsafe and a particular hazard to school buses. Specifically, they propose that the commission build 32-ft bridges, with pavement at least 20 ft wide and a grade of not more than 3½%.
- The Turnpike Commission should carry drainage water to an adequate outlet instead of dumping it at the edge of the turnpike-right-of-way into county ditches and streams that are not large enough to handle the increased flow.
- The prime contractor on each section should be responsible for damage to county and township roads over which he hauls materials to build the turnpike.

Some county commissioners already have announced plans to post highways, put up barricades, or—if necessary—deputize county highway workers to keep haulers for turnpike contractors on chosen roads.

ARBA Reaffirms Highway Goals



Need for Well-Balanced Federal Aid Stressed

As an assist to Congressional committees soon to reconsider the measures for a stepped up federal highway aid program that stalled in the last session of Congress, the American Road Builders Assn. has issued a statement of the elements it believes the legislation should embody.

The principal recommendations in the ARBA statement are as follows:

The association has full confidence in the traditional federal legislative policy which has provided a joint, cooperative federal-state program, based on matching funds, with primary responsibility vested in the states.

Deficiencies in all of the federal-aid systems should be corrected within a reasonable period of time—preferably 10 years.

Federal assistance to the states should be extended on the basis of a well-balanced program, i.e., the orderly, proportionate and, so far as practicable, concurrent improvement of the federal-aid interstate, primary, and secondary systems, including the designated urban highways.

Completion of the interstate system is of vital importance to the national defense and economy and merits special consideration, with the federal government assuming at least 90% of the cost.

The federal government should, as in the past, extend 50% of the funds for improvement of the federal-aid primary and secondary systems, including the designated urban highways.

Employment practices and prevailing wage scales on federal-aid work should remain a matter for determination by each state.

Administration of federal-aid for highways should remain a function of the U. S. Bureau of Public Roads.

• **Treasury financing favored**—Owing to the complexities involved in federal fiscal matters, the association takes no positive position as to specific revenue measures. It is the association's broad opinion, however, that the financing of an accelerated highway program should be through Congressional authorizations made upon the general funds of the Treasury as in the past and not related to any specific source of revenue.

According to estimates made a year ago, the overall federal-aid project would involve a total cost of $68 billion, of which $23 billion would apply to the interstate system, $30 billion to the primary (rural and urban) system and $15 billion to the secondary system. Considering the interstate system as a special project and assuming about 90% federal contribution thereto and also assuming a 50% federal contribution to the other systems, a breakdown of matching responsibility between the federal government and the states is given in Table I.

A logical stepped-up schedule of annual federal authorizations of funds, assuming a construction period of 10 years, is given in Table II. That schedule also shows, as does Table I, the relationship between total federal requirements and the state matching requirements.

• **10-year program is realistic**—This proposed federal-state cooperative program is entirely feasible from the standpoint of engineering and construction; and it continues to be the firm belief of the association that it, or a program of federal authorizations approximating it, should be adopted and the work vigorously prosecuted.

The thought has been advanced in certain quarters that even if funds were made immediately available, the work could not be accomplished within a period of 10 years and particularly so because it would take at least a year and possibly two years to prepare plans and secure rights-of-way.

The answers to such arguments are contained in the comprehensive capacity studies made by an ARBA task force in the fall of 1954 and published early in 1955. These studies, predicated on a 10-year stepped-up construction target 50% greater than that called for by the current federal-aid requirements, revealed only a few weak spots and none that could not be readily overcome. In arriving at this conclusion, due consideration was given to maintenance of the federal-aid systems and to all highway and street requirements outside the federal-aid systems. Consideration was also given to other construction requirements. The studies brought out the fact that engineering plans in a sizable amount of work on the federal-aid systems were already available.

The acquisition of rights-of-way in urban areas is conceded to be a time-consuming and costly factor.

Three States Spur Road Plans

Wisconsin sets $106-million '56 goal; Indiana lets final 'pike paving contract; St. Louis expressways up to voters

Last week there were strong indications that some major highway projects in Indiana, Missouri and Wisconsin will wind up in the "completed" category by the end of 1956.

Wisconsin's Highway Commission has approved a record $106-million program for 1956. Missouri's Highway Department plans to contract for more than $22.5 million worth of projects in the next eight months to catch up on construction in the St. Louis area. And the Indiana Toll Road Commission has passed a milestone by awarding the final grading and paving contract on the 156-mi east-west turnpike.

But along with the reports of progress comes a hint of a critical problem that could hold up the construction schedule of the Indiana Toll Road.

Albert J. Wedeking, executive director of the Indiana Toll Road Commission, reveals that inadequate supplies of portland cement for the roadway pavement may lead to substitution of flexible-type bituminous pavement for part of the work. The eastern 60 mi of the four-lane divided road have been completed, but cement shortages have caused serious delays in the central and western portions.

The Hoosier superhighway is scheduled to be completed by Nov. 15 of next year. To stave off any possibility of a delay due to shortage of cement, the Toll Road Commission has ordered J. E. Greiner Co. of Baltimore, its engineering consultants, to survey the supply problem. At the same time the engineers will consider the possibility and practicality of using the flexible bituminous type roadway on the proposed North-South Toll Road, which would link the northern Indiana Turnpike with the Indianapolis area.

• **Indiana turnpike**—The last link of the turnpike to be put under contract involves a 6-mi section next to the Illinois border in Hammond. This is the section that will connect with the Chicago Skyway, a 7-mi toll facility now in the blueprint stage. Arcole-Midwest Corp. of Evanston, Ill., will carry out the final phase under a $2.9-million contract.

A new report on the turnpike's status shows that the total cost of the roadway part of the project stands at 13.7% below pre-construction engineering estimates. Total contracted cost is $134.4 million as compared with an original estimate of $155.7 million. But this saving will be partially offset by an over-run of about $11 million for right-of-way costs.

With turnpike construction in its last stages, the Indiana Toll Road Commission has turned its attention to toll fees. It has approved a schedule recommended by the New York City consulting engineering firm of Parsons, Brinckerhoff, Hall & Macdonald. This calls for a charge of $1.95 for a one-way passenger car trip over the entire route. Trucks and other vehicles will pay up to $13.75.

• **Wisconsin's program**—The 1956 program adopted by the State Highway Commission has three parts. The first is a basic group of 197 projects costing $67.6 million. Plans and financing for these are set. The second is a supplemental $28.5-million program for which plans and financing are not definite. The third is an estimated $10 million worth of projects on county and local roads, to be financed on a 50-50 basis by federal and local funds.

The commission is ahead of schedule on its $65-million 1955 program—the largest undertaking by the state up to that time. Predictions are that contracts awarded this year will total about $71 million.

Estimates on contracts to be awarded next year run around $86 million, more than the 1956 basic program but not covering all of the supplemental work. A substantial part of next year's work will be on the 2,200-mi state arterial highway system approved by the 1955 Wisconsin legislature.

• **Missouri's plans**—The St. Louis area has an immediate need for expressways. But progress has been frustrated for years by local opposition to proposed routes.

Missouri's new plans for St. Louis work are based on the assumption that St. Louis County voters will approve funds for expressways in a bond issue election to be held Nov. 22. The election involves a $39.7-million program. It includes authorization of $8.5 million to pay the county's one-half share of the right-of-way costs for the Daniel Boone, Ozard and Mark Twain Expressways and for costs of an outer belt system.

Proposed expenditures by the Highway Department would include $17 million for improvements in urban areas.

Some $11.7 million of this is earmarked for projects within St. Louis proper. One major city job would provide a start on the first leg of the Mark Twain Expressway from Third and Locust Sts. to Seventh St. and Cass Ave. The other would be for construction of the Market St. cut-off on the Daniel Boone Expressway.

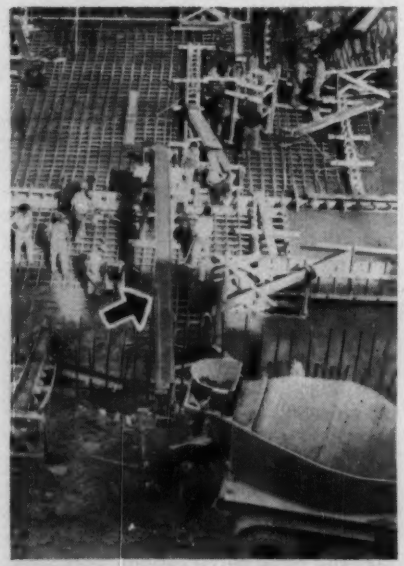
St. Louis County plans call for awarding one construction contract and purchasing right-of-way for three expressway segments. The construction job would involve 5.4 mi of highway on Page Ave., from Lindberg Blvd. to Pennsylvania Ave.

Conveyors Speed Concreting

Using portable conveyor belts to reach well into the huge foundation for the Federal Reserve Bank Building in Buffalo, William L. Crow Construction Co., New York City, continuously cast 1,025 cu yd of concrete in 15 hours. The concrete was for a 4-ft-thick subcellar slab.

To speed the job, the general contractor supplemented the usual procedure of chuting the concrete from the street to the forms. Trucks delivered concrete directly onto the conveyor belts, which carried the material to forms up to 40 ft away.

Reason for the thick slab is that Buffalo has a high water table—within 10 ft of the ground surface. The subcellar slab will be 24 ft below ground level. Floors and walls of the foundation must be watertight. In the case of the subcellar, this was accomplished by casting the floor in one continuous slab on top of membrane waterproofing. Without the water problem, thickness of the floor slab would have been only 6 or 8 in. instead of 4 ft. Architects for the new bank building are James, Meadows and Howard, Buffalo; and Eggers and Higgins, New York City.



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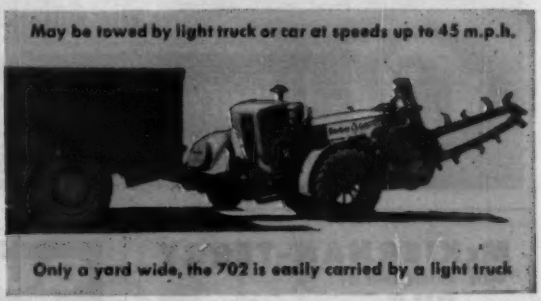

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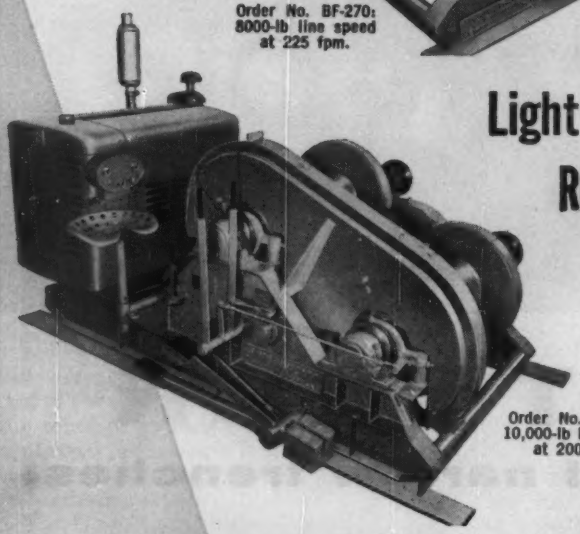

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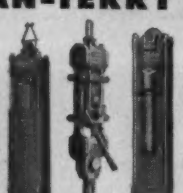

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Society Planned

Consulting engineers meet to organize federation of state and regional groups

Formation of a federation of state or regional associations of consulting engineers was unanimously approved at a meeting of representatives of 10 such associations held in St. Louis, Mo., Oct. 20-29.

The following organizations were represented officially at the meeting: the Consulting Engineers Association of California; Chicago Association of Consulting Engineers; Colorado Association of Consulting Engineers; Gulf Institute of Consulting Engineers; Intermountain Institute of Consulting Engineers; Minnesota Association of Consulting Engineers; Missouri Association of Consulting Engineers; New York Association of Consulting Engineers; Consulting Engineers Association of Oklahoma; Association of Consulting Engineers of Upstate New York.

Represented by observers were the American Institute of Consulting Engineers and the National Society of Professional Engineers; also a group in Ohio that is planning to set up the Ohio Association of Consulting Engineers.

Total membership in the associations officially participating in the meeting is about 450.

At the meeting, a steering committee was appointed with instructions to draw up a constitution and by-laws for a National Federation of Associations of Consulting Engineers, which is to be submitted to the participating organizations within 90 days. Chairman of this committee is John K. M. Pryke, President of the New York Association of Consulting Engineers, 220 East 42nd St., New York 17, N. Y.

During the conference, A. C. Kirkwood, observer for the NSPE, reported that the NSPE board, at its fall meeting, had authorized the establishment of "functional groups" within that society, which groups, when made up of consulting engineers, would render services to their members similar to those of the associations represented at the St. Louis meeting.

Oldest of the participating organizations is the New York Association of Consulting Engineers, which was set up in 1923 to safeguard the interests of consultants engaged in building work.

Largest of the founding organizations is the one in California, which, with 168 members, is said to represent 60% of the consulting engineers in that state.

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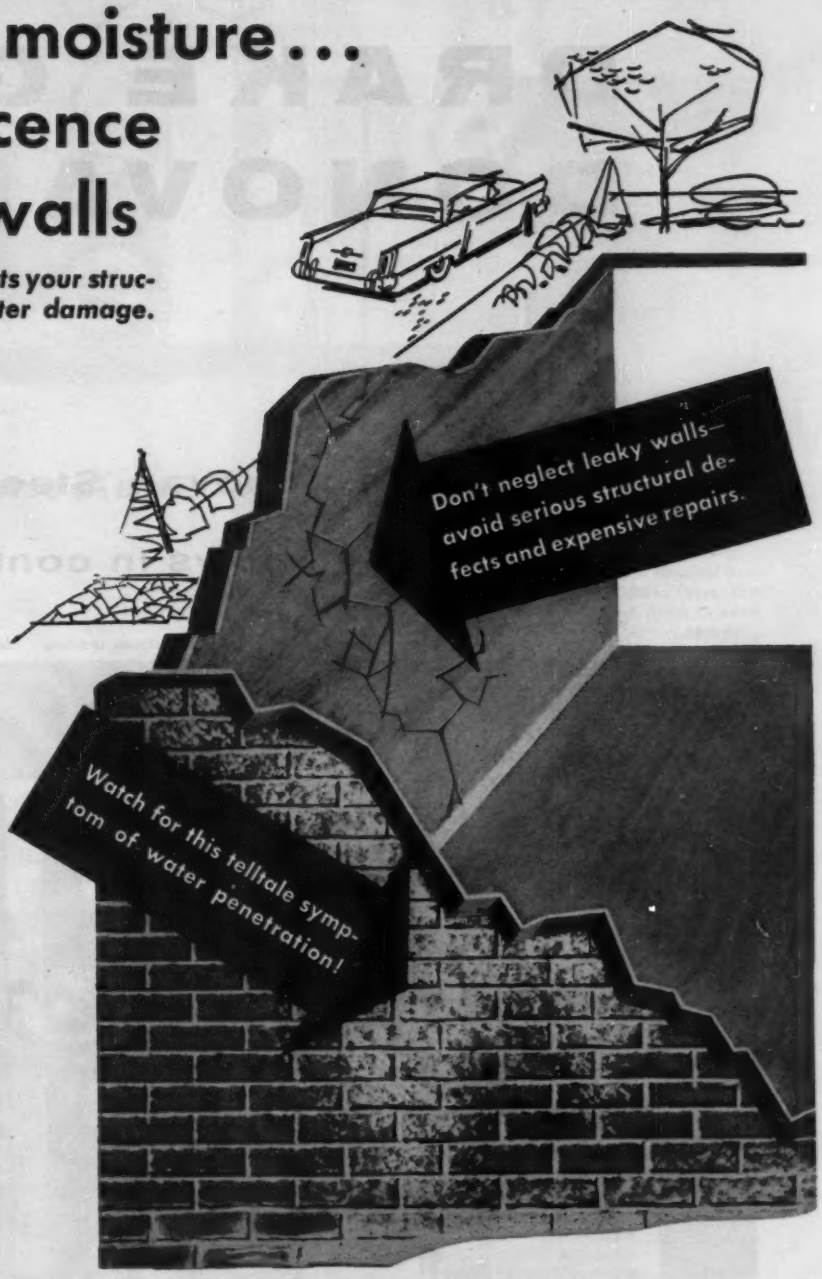
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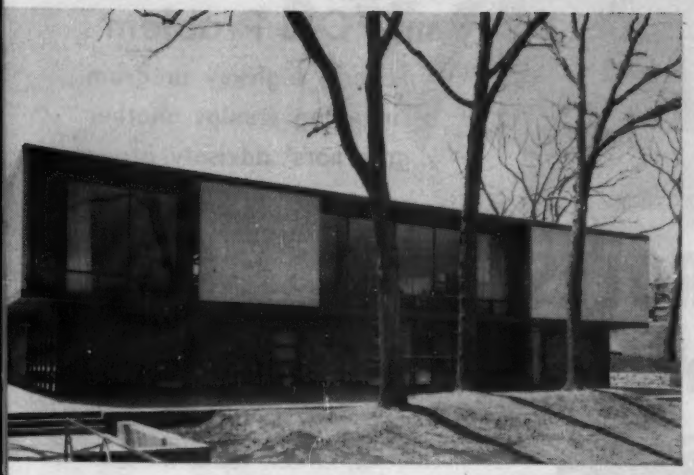

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Truscon Donovan Awning Windows offer superb lighting and ventilation without drafts. Ventilators operate in unison, either by mechanical control or by completely concealed operators. The awning principle permits ventilation in inclement weather; the design completely eliminates all unsightly exposed connecting arms, screws, racks. Exceptional depth of the members provides the strength necessary for long, trouble-free performance.

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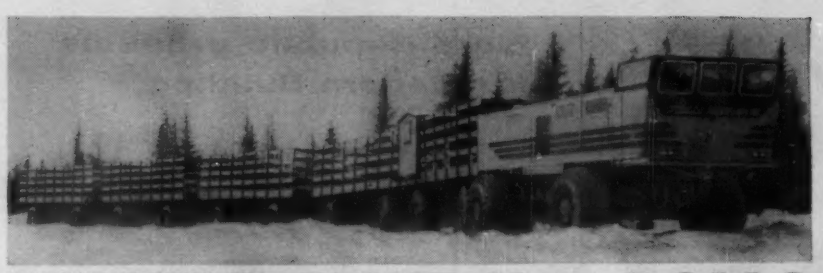

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Each of the 24 wheels of this diesel-electric freighter is a "locomotive", containing within its rim a powerful electric motor and gear-reduction. This permits each car to power its own load. Steering is easy; each car automatically "tracks" behind the control car, while the driving thrust of each car is teamed with the others to keep the whole carrier moving. Huge wide-base low-pressure tires give tremendous traction – absorb ground shocks of rough terrain.

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Same Old Problem

Federal highway program financing stumps another governors' advisory group

The nation's governors are finding themselves in the same boat with Congress. They want more highways, and soon—but they can't agree on how to pay for them.

The new highway committee of the U. S. Governors' Conference met in a Washington hotel suite last week for an "exploratory conference." No formal decisions were made.

However, insiders report the Governors' Conference will make a strong recommendation late this year that Congress get a large-scale highway construction program under way as soon as possible. The group will sidestep any concrete proposals on the question of financing.

The nine governors attending the session knew they faced a tough job. In August, the conference urged Congress to pay for an expanded highway program out of highway-user revenues now spent for other purposes.

However, in Congress only token attention has been paid to this line of thought. The big fight has been over a pay-as-you-go plan involving new highway-user taxes versus the Eisenhower Administration's bond-financing plan.

The ultimate outlook is for highway legislation calling for increased taxes on motor fuels, tires and tubes, and vehicles. And many of the nation's governors still feel this entire field of taxation should be turned back to the states.

Last week's meeting was attended by Chairman Kohler of Wisconsin, and Governors Leader of Pennsylvania, Lausche of Ohio, Patterson of Oregon, Hodges of North Carolina, Stratton of Illinois, and Gary of Oklahoma. Governor Langlie of Washington, chairman of the Governors' Conference, sat in as an ex-officio member.

The Eisenhower Administration was represented by Secretary of Commerce Sinclair Weeks; Secretary of Agriculture Ezra Taft Benson; Francis V. DuPont, highway consultant to Weeks; former Gov. Howard Pyle of Arizona, White House staff, and an aide to Treasury Secretary George Humphrey.

Aspects of the problem discussed by the governors included financing, the portion of the bill to be footed by the states, and the question of whether states should be given credit for toll roads.

WHO

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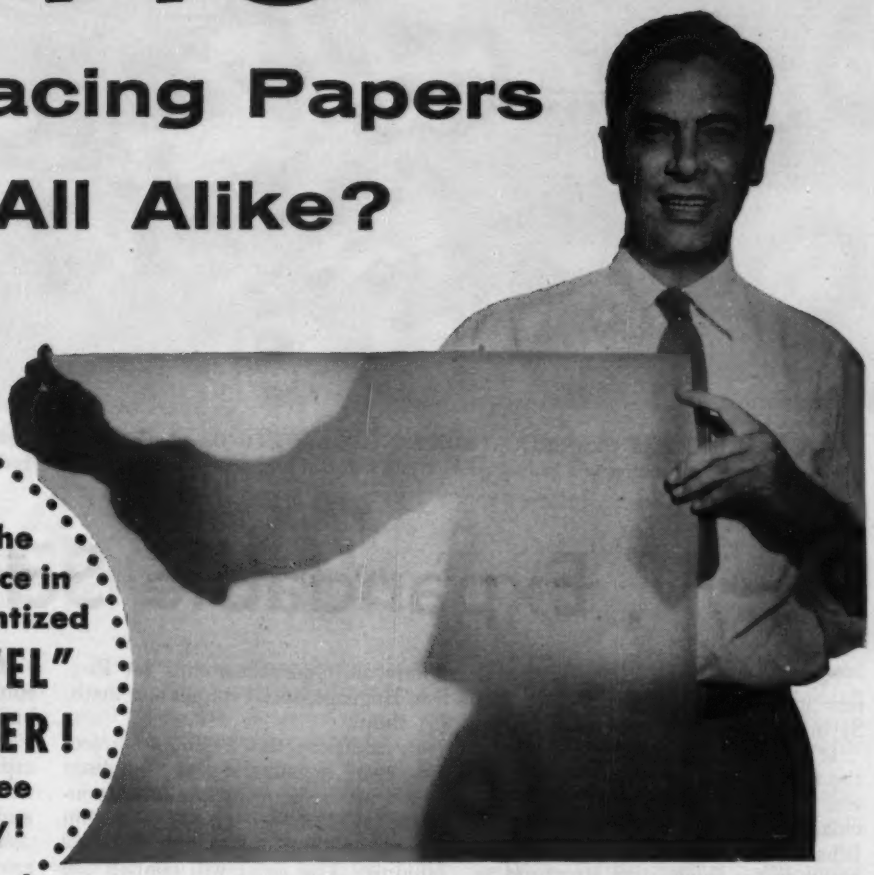

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SEPARATE CIRCULAR CLASSROOM BUILDINGS are joined to the administrative building by a covered walkway. Each circular building has its own utilities in a central core. Units four and five, going clockwise, are not included in the present program.

Expandable School Built of

No matter how you consider the new junior-senior high school at Old Saybrook, Conn., it is unusual:

It is really six buildings of which the four that accommodate classrooms are circular and one-story; these circular buildings are constructed by the lift-slab method—a method not so common for single story structures as for multiple; and the exterior walls are porcelain-enameled and glass.

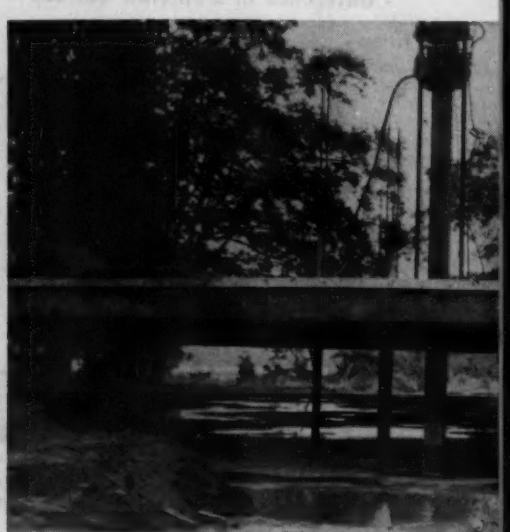
The four classroom units will house respectively; (1) six general classrooms, (2) home economics and science, (3) library and four classrooms for English, language, social studies and math, (4) shops.

In addition, the $940,000 project has two rectangular-plan buildings which are being constructed by conventional methods. These are a gymnasium building and an administrative building. The latter will contain the general offices, a kitchen, two classrooms, boiler room and an all-purpose room to serve as cafeteria and assembly area. The buildings will be interconnected by a sheltered walkway.

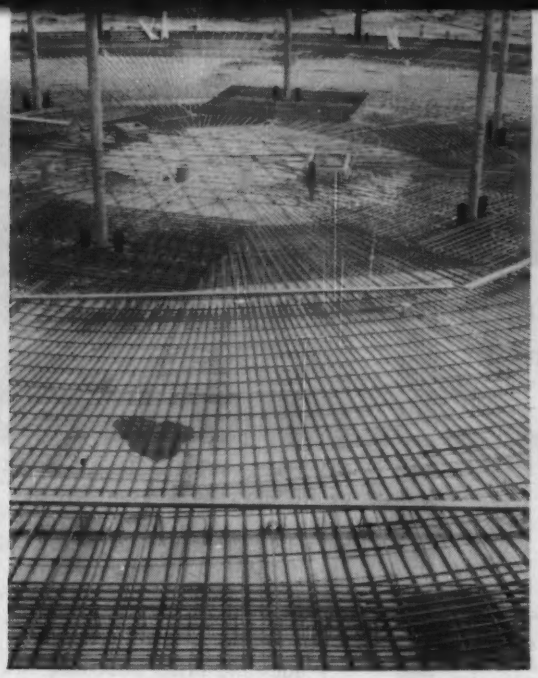
The site has been planned to accommodate two additional circular buildings if necessary for expansion at a later date. This would provide a capacity of 900 students ultimately, while the capacity of the plant now under construction is 600 students.

The circular lift-slab structures are essentially two reinforced concrete disks separated by steel columns—one disk is the floor, the other the roof slab. The diameter of the slabs is 100 ft while the diameter of the walls is 90 ft. This provides a 5 ft peripheral

1 Preparing to lift the roof slab of one of the circular buildings, men check lines. Jacks at columns are hydraulic and lift at a rate of 4 to 5 ft per hour.



2 Up goes 500 tons of reinforced concrete. Equipment and accessories needed on



RADIAL AND CIRCULAR reinforcing is ready for concreting. Sleeves at columns will receive bars from jacks.

OPERATOR mans one of the two consoles used in the lifting operation. Each console controls 9 jacks.

Circular Lift-Slab Units

sidewalk at floor level and a 5 ft overhang at roof level. A clear distance of 9 ft 4½ in. separates the two slabs.

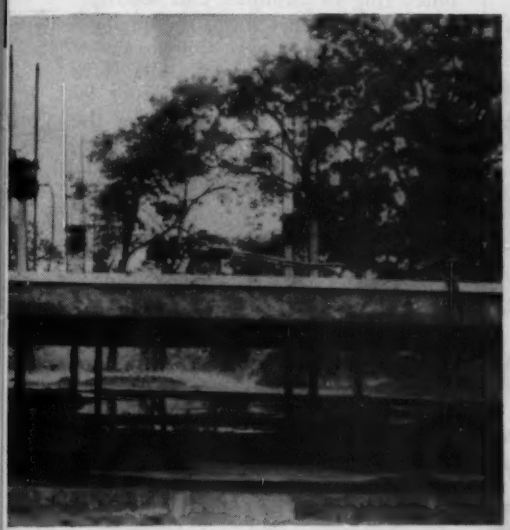
Support for the 10-in.-thick roof slab is provided by two concentric rings of columns. The inner ring has a diameter of 33 ft 2 in. and consists of six evenly spaced 5½-in. steel pipes. The columns in the 90-ft-dia outer circle also serve as the alternate vertical mullions for the circumferential glass walls. There are 12 outer columns and they are 6¼ in. square, formed of two 6x6x⅝ in. steel angles.

Reinforcing in the circular slabs is two directional—radial and circumferential. The slab has extra reinforcing in the vicinity of the columns to take care of the higher moments and shears. This results in two concentric peripheral areas of strengthened design. One of these peripheral areas is 10 ft wide and centered over the outer column ring while the other is 7½ ft wide, centered over the inner column ring.

• **Construction procedure**—Construction began with casting the foundation and erection of the 18 columns. Bases for the columns had to be designed for high moment resistance due to the nature of the operation.

When the slab had set sufficiently, two coats of separating compound were applied to the surface.

Work on the roof slab got under way. The 18-in. square cast steel lifting collars could now be slipped into place over the columns. They were not lowered flush to the floor slab, but to a position ¾ in. above it to allow



roof ride up with slab. To avoid erection stresses, all jacks must be kept even.

3 After reaching final height the slab is held in place by welding two 8x¾ in. shear blocks to opposite sides of each column. The jacks are then removed.

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K660	12 to 26 H.P.

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COLUMN WITH SHEAR BLOCKS welded into place shows in closeup.

for future grouting around the collar.

All bottom reinforcement was placed, followed by installation of electrical conduit, plumbing vents, ventilation intakes and exhausts, chimney flues and other imbedded inserts. Even the chimney was built on top of the slab prior to lifting.

Following this, the top layer of reinforcing was placed, perimeter edge forms added and the concrete placed. Each slab required 241 cu yd.

The slabs were cured by ponding and were not lifted until cylinder tests showed that they had attained a strength of 80% of the 3,000-psi design stress. After a period of 10 to 15 days needed to develop this strength the slabs were ready to be jacked.

The lifting rate used was four to five feet per hour. After the final height was reached the slab was held in place by welding two 8 x ¾ in. shear blocks to opposite sides of each column.

• **Exterior treatment**—The completed building will have an exterior of porcelain-enameled planes and glass. The outer ring of columns plus alternate vertical mullions furnish the basic frame.

Each of the classroom units is to be heated by its own oil burner located in a center service core of the building. The burners in the separate units will be fed by underground distribution lines from a central oil supply.

The circular design reduces the perimeter of the separate buildings. It also provides gerater flexibility for teachers, in that each unit is a self-contained school-within-a-school (ENR, May 26, 1955, p. 46).

The architect was Warren H. Ashley of West Hartford, Conn. Marchant and Minges, also of West Hartford, were consulting engineers.

Torring Building Co., Torrington, Conn. is general contractor with New England Lift Slab Corp. of Boston, Mass. as the lifting sub-contractor.

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National Homes Corporation has a way of getting things done. The 8-room Edgelea School at Lafayette, Indiana, designed by Walter Scholer and Associates, also of Lafayette, is a good example. Comprised of basic units manufactured by National Homes, it was ready for occupancy in only 21 working days after completion of the foundation, floor slab and necessary utilities.

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MILL CREEK CONSTRUCTION SITE is a former city dump requiring extensive piling to an average depth of 49 ft to support the sewage plant structures. The area is large enough to allow for construction of additional facilities required for final treatment.

After Two Years' Work—Two Years to

Sow's-ear-to-silk-purse tale unfolds in Cincinnati as 90-acre city dump is transformed into 29-mgd sewage works

PLENTY OF CONCRETE has gone into 12 digesters, with lots more to come. Six of the twelve large floating covers have been equipped with gas recirculating systems for controlling scum formation.

It is two years since construction began on the $47-million Mill Creek facilities for collection and treatment of sewage and industrial wastes in Cincinnati, Ohio. On October 6, 1953, the city dedicated its $6-million Little Miami treatment plant, and broke ground for the bigger second construction stage that will lead to completion of the Mill Creek unit of the program in 1959.

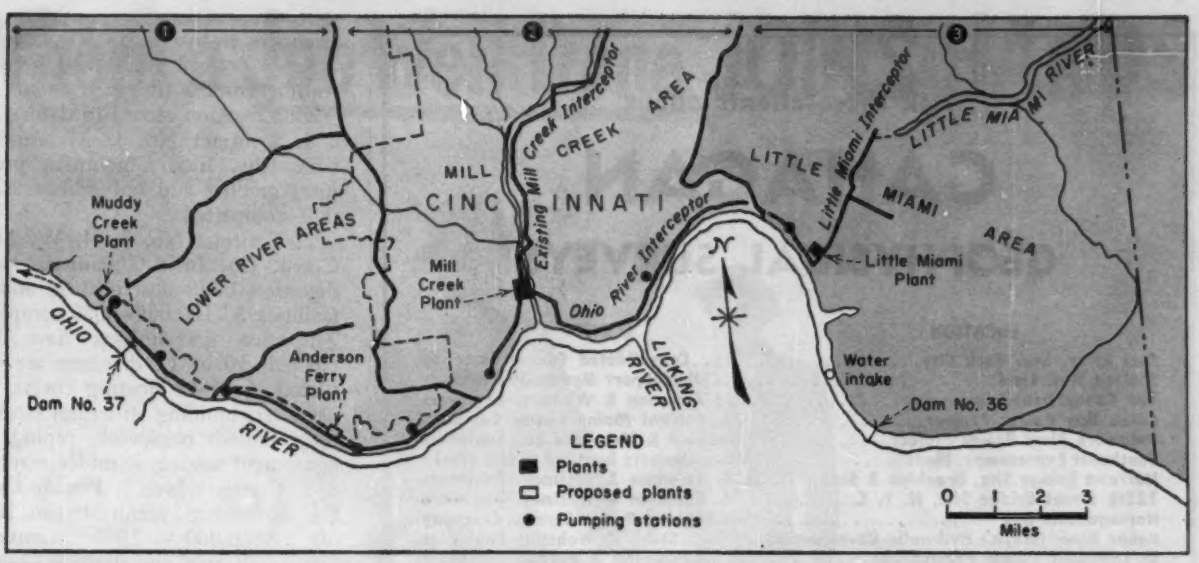
During the past two years, many millions of construction dollars have been spent and thousands of man-hours expended, yet the entire program—one of the most ambitious sewerage undertakings in progress today—is only about half completed.

The score as it stands now shows the completion in 1953 of the Little Miami Stage: a 3.3-mi Little Miami interceptor that runs generally parallel to the river of the same name; the 1.1-mi interceptor that runs parallel to the Ohio River, collecting sewage from the area to the northwest of the plant; and the Little Miami sewage treatment plant itself, which treats 29 mgd. In addition, facilities for the primary treatment stage (current contractual program) of the Mill Creek treatment plant are approximately 25% completed.

The Mill Creek interceptor, completed previously as part of the city's interceptor network and serving the entire urban area north of the plant, will be the main contributor to the Mill Creek plant. But added to this will be the flows of the 8-mi Ohio River interceptor and a shorter one serving the southwest corner of the Mill Creek area.

It was in anticipation of this plant, handling large volumes of industrial wastes, that necessitated Cincinnati's unusual method of charging industry for treatment on the basis of pollution load treated (ENR June 25, 1953, p. 41). Under this system, industries are charged a "normal rate" for loads on the order of those for normal domestic sewage (defined as having not more than 300 ppm suspended solids, 240 ppm BOD nor 50 ppm other soluble matter), and pay a surcharge for loads in excess of normal. The plant is designed on the basis of 500 ppm suspended solids and 400 ppm BOD.

• **The Mill Creek plant**—The $22-million plant, one of the largest planned for the Ohio River Valley, will have a design capacity of 120 mgd. Like the Little Miami plant, this one was designed for primary treatment with site provisions for secondary facilities. In both, flocculation is placed ahead of sedimentation.



ONE DOWN—TWO TO GO: The Little Miami area (number 3) is completed. Second stage of construction will be wound up with completion of the Mill Creek Plant (2) and winding up overall program will be dedication of Lower Area plants.

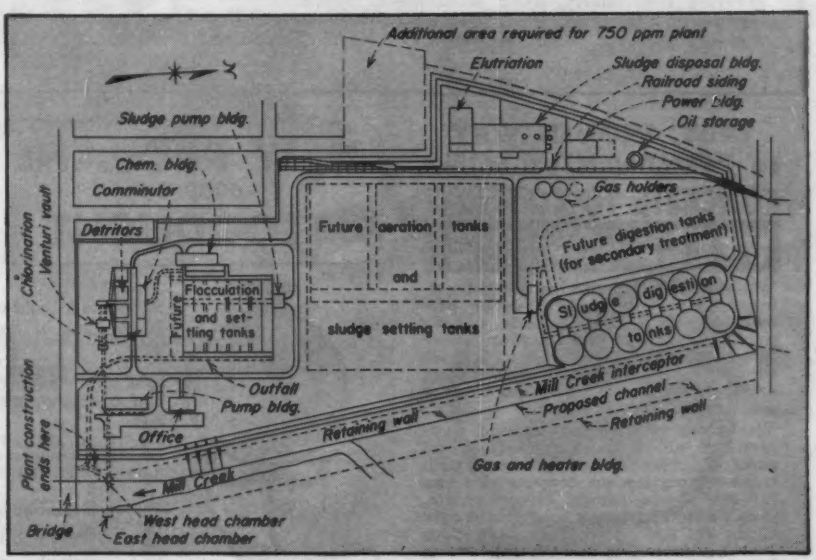
Go on Key Ohio Sewage Plant

It was established prior to final design that processing of sewage sludge for fertilizer would not be economical due to the relatively low organic content of the predominantly industrial waste treated. Therefore, the sludge disposal building will contain an incinerator, instead of sludge drying and grinding equipment.

The treatment site is the location of a former city dump with fills of debris ranging from 15 to 49 ft deep. The poor bearing capacity of the filled area necessitated piles driven into the original ground, which according to test borings showed 5 ft of clay and then sand and gravel, glacial till running from fine to coarse as the depth increased. Limestone bedrock was located about 80 ft below tops of test piles.

To date, 8,400 piles—nearly all reinforced concrete, cast-in-place, step-taper piles—have been driven to an average depth of 48 ft to take care of the 12 digestion tanks and buildings under current construction. At least an equal lineal footage is anticipated for bearing the settling basin and other buildings that will round out construction for the primary stage of treatment.

Because of the large number of piles, according to F. V. Cornelius, principal engineer, City Construction Section, economic consideration made it imperative that final penetration be held to a minimum consistent with design criteria. The specifications established a design load of 25 tons as evidenced by a net settlement of no more than 0.250 in. under a 50-ton test load, and a 10-ton resistance to uplift as evidenced by a net movement of 0.200 in. under a 20-ton pull.



FOR PRESENT AND FUTURE NEEDS—Mill Creek Plant, largest single phase of program is geared for normal pollution loads, industrial loads and for future expansion.

Thirty-five piles were loaded to uplift or bearing to determine proper driving penetration and to insure continued consistent bearing values as driving progressed. Tests were conducted with hydraulic jacks reacting against a weighted platform, and pile movement was recorded hourly from indicating gauges reading to 0.001 in.

Floating covers have been installed on digesters—six of them equipped with gas recirculating systems, a relatively new method for control of digester scum problems. The covers, 110 ft in dia, were believed to be (at the time they were installed) the largest of their kind.

Due to difficulties in procuring capable rivet gangs, high tensile bolts were used in structural steel erection of the administration building. The bolts were pulled up with impact

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Shelton Well Field	Bridgeport Hydraulic Company
The Connecticut Expressway	Ammann & Whitney, Engineers
Casco Bay Power Project	Central Maine Power Company
Delaware River Power Project	Jackson & Moreland Co., Engineers
Southeast Expressway, Mass	Massachusetts Dept. of Public Works
Narrows Bridge Site, Brooklyn & Staten Is., N. Y.	Ammann & Whitney, Engineers
125th Street Bridge Site, N. Y. C.	Ammann & Whitney, Engineers
Narragansett Bay	New England Power Service Company
Baker River (Wash.) Hydraulic Development	Stone & Webster, Engineers
St. Lawrence Power Project	Sanderson & Porter, Engineers
Massachusetts Turnpike	Howard-Needles-Tammen & Bergendoff, Engineers
Garden State Parkway, New Jersey	Goodkind & O'Dea, Engineers
The Connecticut Expressway	Loomis & Sullivan, Engineers
The Connecticut Expressway	Knappen-Tippetts-Abbett-McCarthy, Engineers
Portland, Pa. Power Plant	Metropolitan Edison Company

Engineers planning heavy construction no longer need put up with spotty data about the subsoil. Gahagan (a leader in hydraulic dredging since 1898) now has seismic survey crews covering the country, using portable equipment. They provide a continuous and accurate picture of bedrock and the nature of the overburden—quickly, inexpensively. For further details, write, wire or telephone Ken Sandbach, Vice President, Geophysical Survey Division, Gahagan Construction Corp., 90 Broad St., New York 4, N. Y. Telephone: Whitehall 3-2558.

EASY, PROVEN WAY
to PERMANENTLY BOND
CONCRETE TO CONCRETE
WELD-CRETE®

Weld-Crete is the amazing liquid bonding agent which enables you to *permanently* bond new concrete *directly* to old concrete . . . or to most any other structurally sound surface . . . *without need for costly, time-consuming chipping, drilling, roughening, acid washing or scarifying of concrete base.*

Weld-Crete has equal bonding permanence all climates, all surfaces, all sorts of conditions. When used with quick setting cement topping you can lay new floors, ramps, driveways, etc. one day and run heavy truck traffic over them the next. Get facts from your building materials supply dealer or write Larsen Products Corp., Box 5756-I, Bethesda, Md.

TYPICAL WELD-CRETE APPLICATION

National Brick Co., Terra Cotta, D.C.

Here Weld-Crete was used to bond new ¾" concrete topping directly to old, badly chipped and spalled floor slab which had been subjected to ceaseless heavy truck traffic. Plant shut-down time eliminated as Weld-Crete enabled National's own mechanics to do job over week end.

NEW PROPANE
6000 C.P.
FLOODLIGHT

50-150 hours light on 20 lb. tank of Propane.

Safe, totally weatherized, completely portable.

Adjustable volume of light.

Throws beam about 100 x 250.

Lights instantly with match in —45° temperatures.

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Used by: contractors, railroads, municipalities, parks and industrial plants.

Dealer inquiries invited

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WM. W. LEE and SON
20 EAST JACKSON BLVD.
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wrenches to the design tension under accurate control established by direct reading from a torque wrench.

Construction record to date:

1. Contract No. 1; McManus & McCarthy, Inc., Cincinnati, preliminary grading and rail sidings; $250,000—completed.

2. Contract No. 2; H. W. Miller Const. Co. Inc., Cincinnati, sludge digestion tanks and heating and gas facilities; $5,100,000—60% completed. The two gas holders have been erected; 10 of 12 digesters are completed; 6 of 12 floating covers have been set; building structural steel has been bolted; brickwork, piping, and equipment setting is under way.

3. Contract No. 3; Penker Const. Co., Cincinnati, administration building; $860,000 — 20% completed. Structural steel erection is nearing completion.

4. Contract No. 4; H. W. Miller, power and service buildings; $1,660,000—10% completed. Foundations have been placed.

5. Contract No. 5; Nichols Engineering and Research, sludge dryer and incinerator; $1,200,000—contract has just been let. Engineering work is under way.

6. A series of contracts covering the sludge disposal building, settling basins, pump house, and appurtenances is to follow, probably within the next 18 months.

• **What comes next?**—As construction progresses at the Mill Creek site, plans will be in the works for the two remaining treatment facilities planned under the program. The Anderson Ferry and the Muddy Creek plants will have an aggregate capacity of 5 mgd and will serve the lower river areas, which because of topography could not be drained into either of the other sewerage districts. Approximately 10 mi of interceptor sewers will collect waste for these plants.

The completion of these plants in 1960, according to Arthur D. Caster, the city's Sewage Disposal Engineer, will see the fulfillment of Cincinnati's construction role in the clean-up of the Ohio River, according to the standards set up by the Ohio River Valley Water Sanitation Commission.

Despite a five-year delay in starting construction because of intervention of World War II, the program, as it is presently being developed, very closely follows the original (1941) design and scheduling of Havens and Emerson, Cleveland consulting engineers. Volumes and capacities have been altered only slightly, and physical changes in the layouts and treatment sequences have been practically nonexistent.

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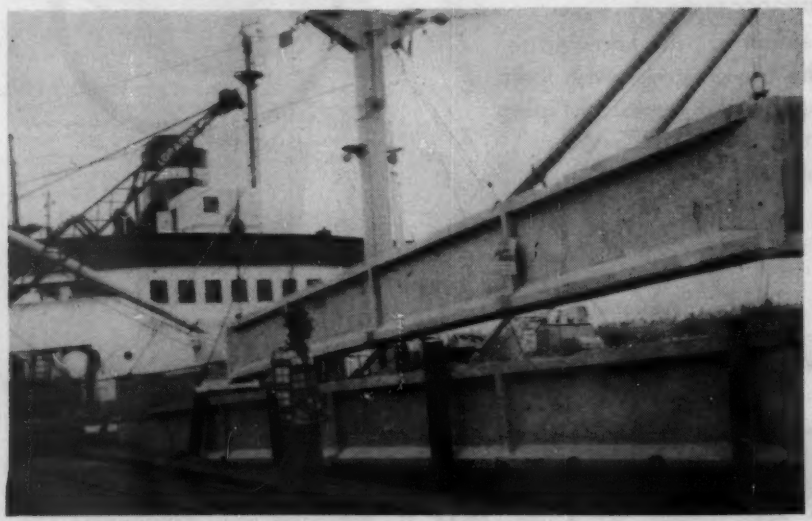
BARBERTON, OHIO

IN ALASKA this lightweight prestressed bridge on the Kenai River is different, because it was . . .

Precast in U. S. Then Shipped

In U. S. Load test was imposed on a pair of completed girders to check usability of lightweight concrete in prestressed work. Load of 1,800 lb per ft per beam resulted in top flange fibre stress of 2,025 psi with no distress noted.



On Ship Bridge girders, 70 ft long, are loaded aboard ship in Portland, Ore., for movement to Alaska. Casting major elements of the structure in the U. S. was aimed at reducing costly on-site operations.

A 280-ft, two-lane bridge was erected last summer in Alaska after all major elements had been cast in Portland, Ore. The structure spans the Kenai River in the Chugach National Forest some 60 miles from Seward. The bridge was designed as a prestressed structure by Bureau of Public Roads engineers in the expectation that it would be precast in Alaska. But the successful low bidder —C. M. R. Constructors, Inc., of Seattle—proposed that it be cast in Portland. And to save shipping weight the contractor asked BPR engineers to okay the use of lightweight concrete. This was done after extensive investigations, even though there was no known precedent for using lightweight concrete in prestressed bridge construction.

Main reason for precasting the structure in the U. S. was the high construction labor costs in Alaska. In addition, the precasting work could be done during the late winter and early spring which would not have been possible in Alaska. And factory-type production facilities are not generally available in the North.

Savings are indicated by the low bid figure of $149,000 (engineers estimate was $177,000). A 190-ft span through truss originally proposed for the site was estimated at $248,000 in 1953. And a rolled steel beam structure with 70-ft spans was estimated at $176,000.

Sixteen 70-ft prestressed girders were cast for the four-span bridge. The 4½-ft deep girders are spaced on 7 ft 4 in. centers. Each girder was stressed by five 12-wire cables with each wire being 0.276-in. dia. The

to Alaska

girders are I-shaped with the stem being 6 in. thick and the bottom flange 20 in. wide. In prestressing operations each cable was given an initial prestressing force of about 60 tons.

The 6-in. thick precast-lightweight-concrete bridge deck is designed to act compositely with the girder for live loads. Fifteen deck slabs were needed for each 70-ft span. Interior slabs span between the two middle girders (being 6 ft 4 in. by 14 ft). The exterior slabs are 9 ft 7 in. wide —extra width needed to provide curb overhang outside of the exterior girders.

Precast diaphragms brace the girders, with 5 units between each pair of adjacent girders. The diaphragms are 6 in. thick, 3 ft high and 5 ft 8 in. long. They are held in place by prestressed cables, two 12-wire (0.196 in. dia) cables being used for each line of diaphragms.

• **Lightweight concrete**—After thorough analysis of the contractor's proposal to use lightweight concrete, BPR engineers made only minor design modifications. The eccentricity of the resultant prestressing force was increased slightly and a somewhat larger total initial prestress force was required. And, on the advice of Freyssinet engineers, structural steel bearing plates—6 in. square by ½ in. thick—were used under the anchorages to obviate the possibility of crushing the lightweight concrete.

BRP engineers established these requirements for the lightweight concrete: design strength of 4,500 psi, unit weight of not less than 100 pcf and satisfactory performance of two girders in non-destructive load tests. Using expanded shale aggregate, a 9-sack mix was developed to meet the strength requirement. And the load tests were satisfactorily met with a load of 1,800 lb per ft of beam.

Precasting the girders was accomplished with only one set of forms, which were in excellent condition after 16 re-uses. All other elements of the bridge—diaphragms, deck slabs and curbs—were also precast of lightweight concrete in Portland.

• **Erection fairly smooth**—The girders and other bridge elements were shipped to Seward as deck load on two separate shipments. From the Seward docks they were trans-shipped by rail and by truck to the job site where the 14-ton units were set in place by two cranes.

Erection proceeded fairly smoothly. Several minor difficulties were ironed out without much trouble. For example, the plans called for only a ½ in. space between adjacent girders, but the girders, as stressed, had more camber than expected and thus were tight at the top. Some chipping of the concrete was necessary for placement. Other inaccuracies in the casting of the girders made it necessary to enlarge the anchor bolt holes.

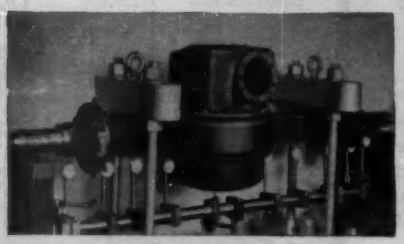
Placing the diaphragms also ran into minor difficulties. The end diaphragms over the substructure units fit tightly because the girder ends were slightly wider than plan dimensions from the spreading of the wooden forms. This meant that girders had to be jacked apart slightly to permit the end diaphragms to be placed. Another trouble developed from an unexplained horizontal deflection of some exterior girders. As this deflection (maximum about 3 in.) was always outward, the diaphragm placing was simple, but that meant that the diaphragm prestressing had to compensate for the deflection. This was accomplished without difficulty except for a crack in one beam web. The crack was chipped in a V shape to a depth of about 1½ in. and replaced with a thin neat cement grout and mortar.

Some of the deck slab units were also slightly damaged during shipment. This required patching in place with some adverse affect on the resulting bridge deck appearance.

The bridge was designed by Bureau of Public Roads engineers. H. R. Angwin is supervising highway bridge engineer for the Western Area and R. B. McMinn is bridge engineer for BPR's Division Eight.

Precasting work was accomplished at the yard of the Empire Building Material Co. in Portland.

Matched to your toughest conditions. Steep grades! Heavy loads! Muddy going! Every adverse condition is duplicated in our "Torture Chamber" to produce axles that can "take it". Stock axles are picked at random and subjected to the equivalent of a "chuckhole" shock every 4 seconds, 24 hours a day, for months on end. Another test simulates an uphill pull 3,000 miles long. Only tests as rugged could produce axles so tough.



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exclusive double-reduction design
2-speed gear ratio spread!

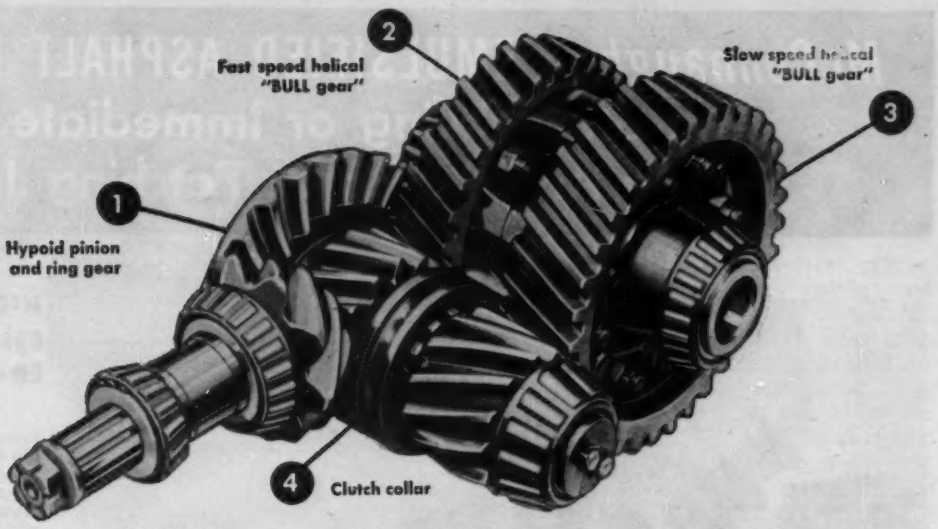
Tailor-made power exactly to your trucking needs with Timken-Detroit!

Unequalled flexibility! TDA 2-Speed Axles, give an almost *unlimited* choice of gear ratios. The Timken-Detroit design is so simple and basic, that an ordinary mechanical change lets you tailor power exactly to your trucking needs. Where other 2-speed axles limit you to only a single gear spread of 37%, TDA offers a range all the way from 28% to 49%.

TDA meets varied needs! The variety of hauling conditions that today's trucks must meet call for maximum speed and power flexibility. Other 2-speed axles are just too limited to meet this need. On the other hand, TDA's simple double reduction design gives complete flexibility. Gear ratio can be easily changed without weakening the axle unit in any way.

How you benefit! TDA not only gives you a much wider power range, but also, all the advantages of a stronger, sturdier, smoother operating design. Since helical "Bull" gear sets operate independent of one another, there is no overheating even after indefinite running in low speed. Bigger huskier TDA parts last longer, stand up better under tough usage.

Less down-time, longer axle life, fewer repairs, higher fuel economy, lower operating costs and higher profits. These are some of the important reasons why so many leading manufacturers and operators everywhere specify Timken-Detroit 2-Speed Axles.



How the exclusive double-reduction design of

TDA 2-SPEED AXLES

gives you greater speed, endurance, and economy!

This is HOW TDA's 2-Speed principle works! A husky hypoid ring gear and a bigger, stronger pinion set (No. 1 in illustration above) provide the *first step* of the total gear reduction for both fast and slow ratios. Two large, heavy-duty helical gear sets provide the *second step*. Both sets are of balanced size and capacity. One set (No. 2 in illustration) is for fast speed; the other (No. 3) is for slow speed. The clutch collar (No. 4) moves to right or left to engage one helical pinion or the other.

WHY this principle offers far wider spread! Because the TDA design is so simple, the ratio may be changed merely by changing the low speed helical gear pinion. Unlike ordinary designs which are limited to 37%, TDA offers spreads of 28%, 37%, and 49%. In effect, this flexibility gives you your choice of power ratios to exactly match your needs.

Greater endurance, longer truck life with TDA. TDA's simple design eliminates small complicated parts and midget size gears. Large hypoid helical design gives more teeth in contact – quieter operation and far less strain. Bearings are larger, too. Helical "Bull Gears" not in use idle, further reducing wear. All this adds up to longer engine life... and more efficient and profitable operation under all conditions.

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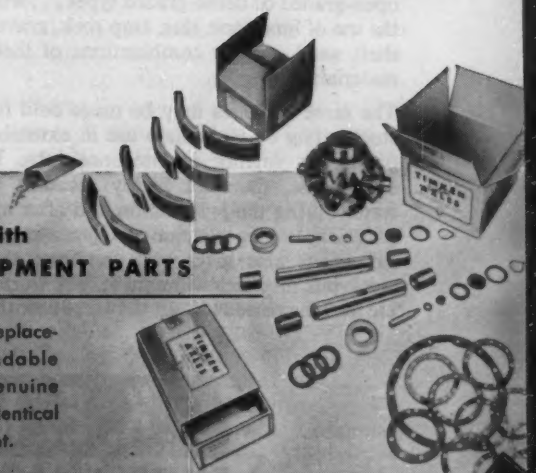

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Each kit is complete — gives you everything you need in one handy package. Gaskets and shim parts, brake liners, steering knuckles, differential gears — for every size of brake and axle. Order by number from your dealer. Cut labor and adjustment costs. Get trucks back on the road quicker.

McConnaughay EMULSIFIED ASPHALT PLANT MIX
For Stock-Piling or Immediate Use On Any Paving or Patching Job

Above—Stockpiling emulsified asphalt, limestone mixture (Open-Graded Plant Mix, Specification No. 2, wearing surface aggregate gradation with AE-200 emulsified asphalt). Left—Manufacturing emulsified asphalt stockpile mixture with McConnaughay JR Mixer, production rate 4 tons of mix per minute.

With McConnaughay Emulsified Asphalts and either damp or dry aggregates, these mixtures may be prepared either hot or cold. They may be either open-graded or dense-graded types . . . with the use of limestone, slag, trap rock, gravel, shell, sand, or any combinations of these materials.

The same mixtures may be made cold for stock-piling or immediate use in extensive paving or smaller maintenance jobs. In either case, they are highly resistant to water during the preparation and after application. Proper selection of aggregates and Emulsions also gives you assurance that stock-pile mixtures will remain fully workable for long periods . . . up to twleve months.

McConnaughay Licensees are fully equipped to take on complete contracts or provide the laboratory facilities, Emulsions, and technical services required on any job. If you are figuring on road, street, or general paving, get in touch with the nearest McConnaughay Licensee (list at right) or contact the main office.

SPECIFICATIONS OF THESE COLD-MIX PROCESSES AVAILABLE ON REQUEST

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Knight-Bitumen Corp.
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Fauber Construction Co.
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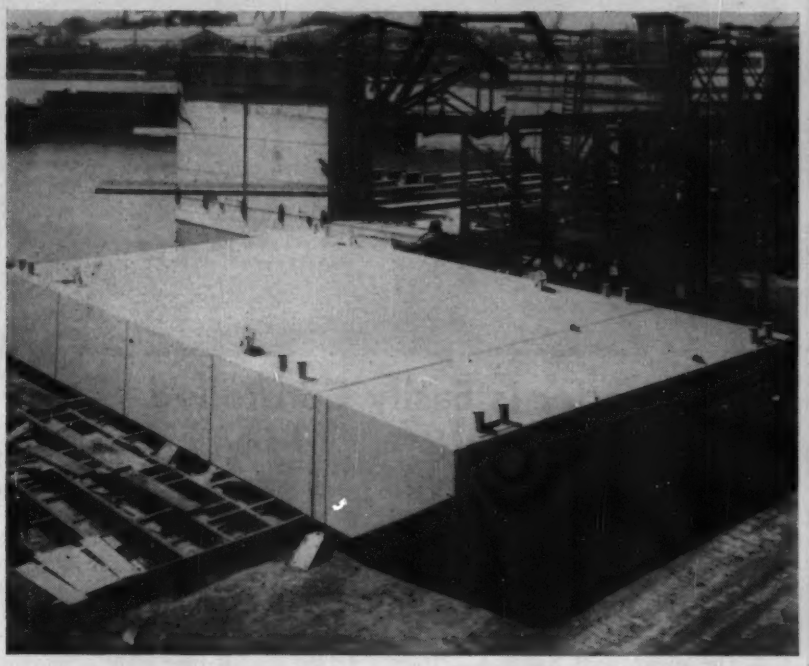
EMULSIFIED ASPHALT PLANTS AND PROCESSES



"Pre-Fab" Barges Are Easy to Transport

The Manitowoc sectional barge was designed for small and large contractors whose jobs are on or adjacent to a body of water. The principal advantage of the sectional barge is that it is a unit which can be knocked down, transported by rail or highway, and reassembled; thus work can be performed in otherwise inaccessible waters or in widely scattered areas.

The basic pontoons weigh about 13 tons each and can be lifted with a crane by means of slings or lifting pads.

The size flexibility of the barge is created by adding or reducing the number of pontoon sections. Two or three basic sections, which would be suitable for a ½ to 1½ yard clamshell, could be increased in size to accommodate larger equipment by bolting on additional units. The pontoons are constructed in a fixture which limits the tolerance to ⅛ in. in length and width. This feature results in accurate spacing for bolting and also insures uniformity. If a customer decides at a later date to increase the size of his sectional barge by purchasing additional sections, he can obtain exact duplicate units.

The basic section is 40 ft long, 10 ft wide and 6 ft deep. It is of all welded steel construction and designed in accordance with the American Bureau of Shipping rules. Frames are spaced on 24-in. centers and every fifth frame—10 ft apart—is a heavy belt frame for added strength at the bolted connection. The deck plating is increased in thickness and supported by deep trussed beams to withstand the large bearing pressures of crawler type cranes and equipment. The sections are thoroughly tested for water tightness and prime painted. The outside is painted an additional color coat selected by the owner.

Two manholes and steel ladders are provided for access to the inside of each pontoon. Stencilled numbers are located on the deck for identification and ease of assembly in the water.

The raked end section is made in 20, 30 and 40 ft lengths, 10 ft wide and 6 ft deep. This section is bolted transversely across the ends of the basic sections so that the length of the raked end section is equal to the width of the barge. The main purpose of the raked end is to provide a better shaped bow for towing and therefore is desirable if the barge is to be moved to a large extent on water.

The 30 and 40 ft raked end section is subdivided into three watertight compartments. In cases where a large crane is operating close to the opposite end of the barge, an excessive list can be corrected to a large extent by filling the center ballast tank with water through the access manhole provided.

The raked end section is of steel welded construction similar to the basic section, but the front is constructed of thicker plating and doubled at the forward corners to withstand heavy impact. One manhole and steel ladder is provided for access into each compartment.

A bolted joint is located at the ends and at 10-ft intervals along the side of the pontoon. A beveled doubling plate is welded to the side and ends of the section to reinforce the hull and they are all drilled for bolting before attachment to the pontoon. Only the holes required to bolt the sections together as initially arranged will be drilled through the hull. The blank holes through the doubling plate only serve to locate bolting holes for additional sections.

Spuds are available and are constructed from standard 14-in. H-beams reinforced throughout their length. The overall size of the spud is approximately 14 x 14 in., and lengths vary from 18 to 24 ft in 2-ft increments. Other lengths and sizes can be built to order.

The lower end of the spud is pointed so that the weight will imbed it in the bottom. It is raised or lowered by means of a wire rope reeved over a deck-mounted sheave and fastened to the lower end of the spud. The wire rope can be led by means of snatch blocks to hand-operated hoists or to a drum on the crane. The deck-mounted sheave and shackle attachment at the lower end of the spud is furnished with the spud wells and spuds; wire rope, snatch blocks, hoists, etc. are not furnished.

Fabricated steel double bitts are available for mooring the barge or tying up other equipment alongside. Normally one double bitt is located at each corner of the barge.

Lifting pads made from ¾-in. plate can be obtained for hoisting the sections in or out of the water, loading on cars, etc. Each pad attaches at the deck edge and has a hole large enough to take a crane hook.

Portable steel loading ramps are available for loading crawler or wheeled type equipment on board the barge. The ramps are 20 ft. long and are made in three sizes to handle various weights of equipment. MANITOWOC CO., INC., MANITOWOC, WIS.

(*New Products continued on page 48*)

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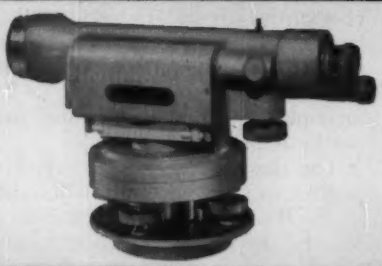

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ADDRESS.....

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New Grader Is Easily Controlled

Allis-Chalmers is now producing the Forty-Five motor grader, a heavy-duty unit powered by a six-cylinder diesel rated at 120 hp at 1,600 rpm.

The motor grader weighs 23,800 lb with 17,375 lb on the tandem drive rear wheels and 6,425 lb on the front wheels. Blade pressure is 10,950 lb.

The diesel used has a 4 7/16-in. bore and 5 9/16-in. stroke, with a 516-cu. in. piston displacement. It delivers power for forward speeds up to 20.6 mph and up to 7 mph in reverse. The grader can be throttled down, under governor control, to one-half these rated speeds without loss of rim pull.

A development incorporated in the Forty-Five is a finger-tip control box with toggle-type linkage for smooth operation of moldboard, wheel lean and scarifier.

Other basic design features include: Combination mechanical and hydraulic power steering; self- energizing brakes aided by a two-stage master cylinder; conveniently located engine and transmission controls; accelerator-decelerator pedal that permits engine speeds to be increased or decreased without change of hand throttle setting; and unit construction for easy service accessibility.

Operator convenience and comfort are facilitated by improved visibility from the operator's platform. Whether sitting or standing, the operator has a good view of the job being done because the main frame has no cross braces or supporting members to impede vision; platform edges are tapered toward the front permitting the operator to see both ends of the blade; steering wheel is adjustable to the height of the operator.

In addition to power steering, hydraulic brakes for the tandem wheels, mechanical parking brake, leaning front-wheel axel, and other standard equipment; special equipment is also available. There are 10 and 14-ft moldboards, a hydraulic shiftable moldboard, blade extensions, bulldozer, scarifier with a maximum pressure of 9,200 lb, hydraulic brakes on forward tandem wheels to provide brakes for all four wheels heavy-duty filters, cab, cab heater, full length one-piece windshield, windshield wiper, defroster, fan, rear floodlight, power tire pump, special tire equipment, hour meter and adometer. ALLIS-CHALMERS MFG. CO., TRACTOR GROUP, MILWAUKEE, WIS.

Roll Crusher Output Is High But the Price Tag Isn't

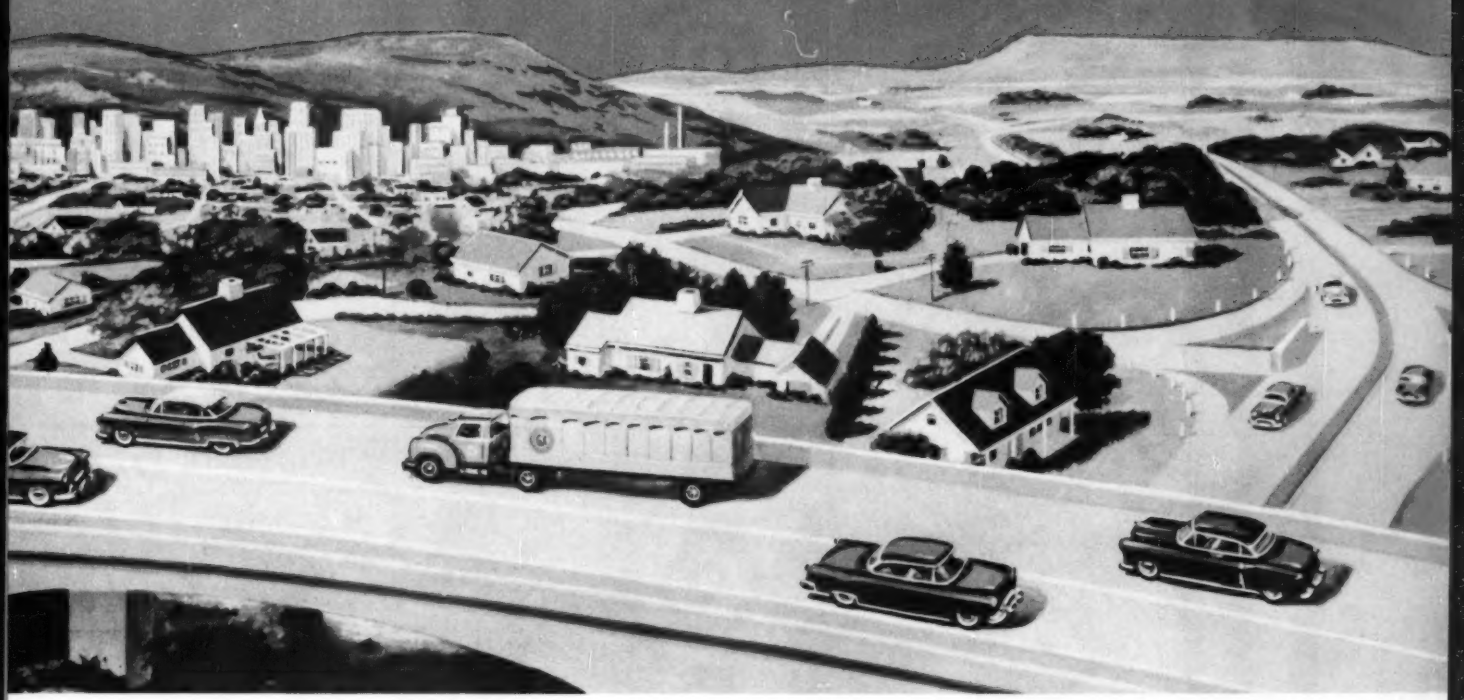
A new size of twin roll crusher is said to increase production 33⅓% over its smaller counterpart without a corresponding hike in cost.

Changing the roll setting to vary the size of the crushed product is also simplified through a modification of design which incorporates a hydraulic jack and shim adjustment mechanism.

The new crusher has rolls 30 in. in diameter and 24 in. in width and will have a production rate a third again as much as the next smaller size, the 30 x 18 unit; the large capacity increase is effected at a relatively low increase in overall size and initial cost.

Capacity of the 30 x 24 crusher runs up to 254 tons of 2½-in. aggregate per hour, based on material weighing 2,700 lb per cu yd. Maximum feed size is 4½ x 4½ in. when using low corrugated rolls. Overall dimensions of the new unit are 8½ ft long x 6 ft 10 in. wide and 53½ in. high. Weight is 11,200 lb; power requirements are in the 85-105 hp range. PIONEER ENGINEERING WORKS, INC., 1515 CENTRAL AVE., MINNEAPOLIS 13, MINN.

35% INCREASE in CEMENT and AGGREGATE PRODUCTION NEEDED



Are You Preparing to Meet the Demand?

Current cement production in the United States runs about 265 million barrels per year. Carefully calculated estimates place required capacity for 1959 at 407 million barrels to supply highway and other construction growth. The increase in aggregate consumption will be equally great throughout this same period.

Yes, ahead of you is what could be most profitable years — profitable if your plant is ready to handle increased volume efficiently — profitable if your plant is geared to meet rigid specifications economically.

ALLIS-CHALMERS CAN HELP YOU

A-C ALLIS-CHALMERS

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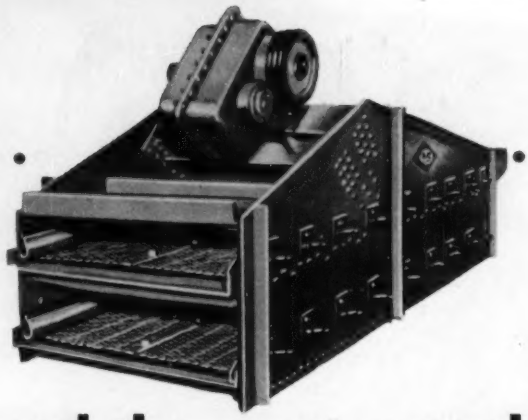
A-4815

ALLIS-CHALMERS OFFERS Experienced Help . . .



and the most complete Integrated for aggregate and

VALUABLE INFORMATION AVAILABLE

In planning for profitable expansion, there are two all-important considerations:

1. Dollar per ton (or barrel) cost of expansion.
2. Volume per man-hour.

With these factors dictating the approach, expansion planning differs from plant to plant. In some operations, profitably meeting increased capacity requirements calls for complete replacement of outmoded equipment. In other plants, the answer lies in supplementing existing equipment and/or developing a more efficient flow. Considerations might also run toward reduced fuel utilization, power consumption, and maintenance. In the case of cement, it could also call for more grinding production or increased burning capacity. It could require better heat recovery or faster clinker cooling.

How Can Allis-Chalmers Help?

With 108 years experience in producing hundreds of *different* types of processing machinery—with the knowledge gained in solving tens of thousands of varied application problems, Allis-Chalmers is an organization that can help you avoid many "pitfalls" in your expansion effort.

Allis-Chalmers, with a century of leadership and experience, builds all the basic machines used in producing aggregate and in making cement, as well as the motors and electric power equipment needed to drive them.

Gyratory Crushers — Most Allis-Chalmers gyratory crushers are supplied with hydraulic adjustment which provides precise product size control and compensation for wear — at the flick of a finger. A wide line of jaw crushers are also built by Allis-Chalmers.

Vibrating Screens — Regardless of screening problems there's an Allis-Chalmers screen designed to meet your specific need. Applications include scalping, medium and fine

Over Half of All the Cement Manufactured in U. S. is Processed in Allis-Chalmers Equipment

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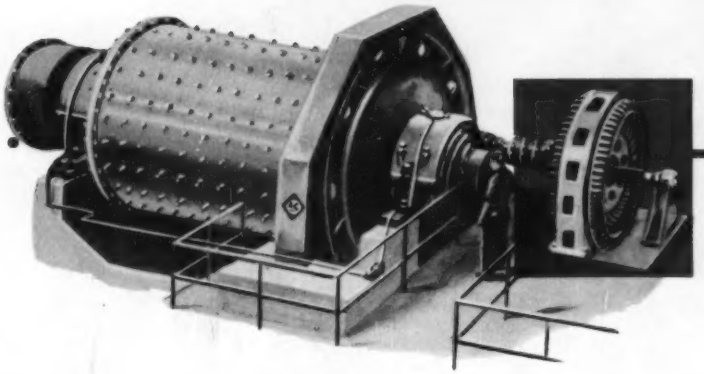
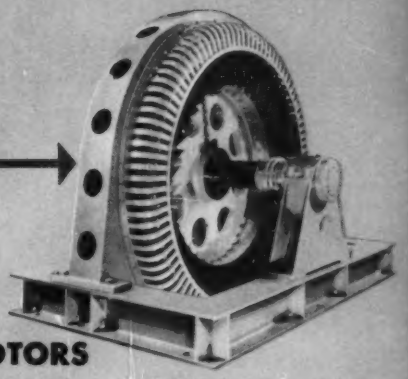




MOTORS

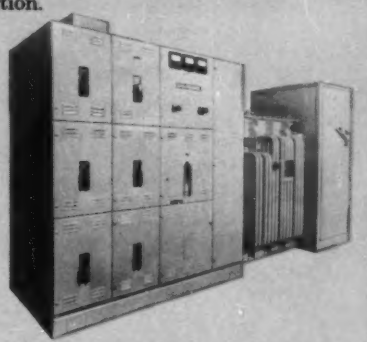
Illustrated is an Allis-Chalmers synchronous motor. Motors of this type are applicable to most constant speed drives. Widely used on grinding mills, Allis-Chalmers synchronous motors provide high efficiency and improve system power factor.

Allis-Chalmers builds a complete line of poly phase induction, synchronous and direct current motors. Mechanical modifications obtainable include drip-proof, splash-proof and totally-enclosed fan-cooled construction in vertical as well as horizontal types. Many ratings are available with flange-type construction.

and diversified line of

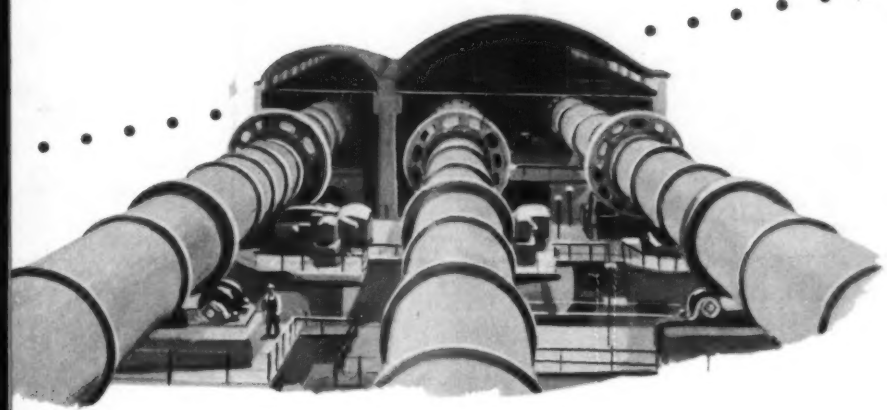
Equipment

cement industries



UNIT SUBSTATIONS

Available in combinations of switchgear and transformer elements to meet any requirement. With unit located near load centers, high voltages are brought in with a minimum of power loss and with complete safety. Because secondary runs of heavy cable are short, voltage drop is reduced.

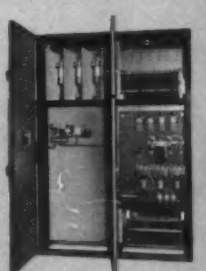


separation, wet or dry screening, rinsing and dewatering. The recently introduced general purpose Model AVS screen is the "talk" of the industry.

Grinding Mills — Allis-Chalmers manufactures all the proven mill designs including those for producing specification or manufactured sand.

Rotary Kilns — Allis-Chalmers all-welded rotary kilns are built in standard and special sizes for a wide variety of uses including cement manufacturing and the production of lightweight aggregates, lime, refractory materials, fertilizers, and chemicals.

CONTROL



The development of the control circuit of the starter shown is an example of Allis-Chalmers integration. Drawing on experience gained in applying hundreds of gyratory crushers, Allis-Chalmers control and crushing engineers worked out this circuit specifically to cut costly crusher downtime.

The Allis-Chalmers control line extends from small manual starters for fractional hp motors through starters applied in controlling motors up to 2500 hp. Built into every control is the type and degree of protection required to meet a specific need.

CHALMERS

TURN PAGE for help in meeting specifications in stone or sand

SPECIFICATION STONE

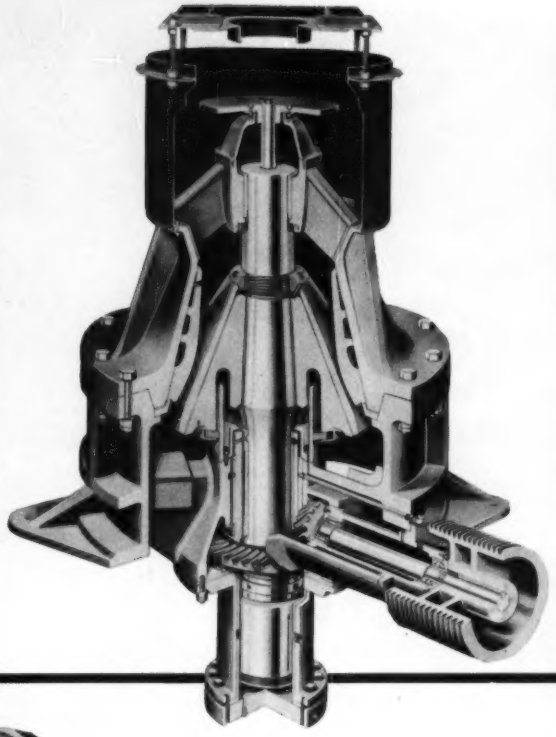
at the Flip of the Switch with the HYDROCONE Crusher

One man, one minute product control! In this truly modern crusher, *Hydroset* control provides a rapid and convenient means of raising and lowering the hydraulically supported crushing mantle. Adjustment to precise size is accomplished by the flip of a switch. Compensation for wear and fast emergency unloading are accomplished in the same easy manner.

Produces Cubical Product

Because of its small eccentric throw in relation to crusher setting, the *Hydrocone* crusher also helps you meet specification by producing a uniform, cubical product. With a smaller effective ratio of reduction during each crushing stroke, fines, slivers and flats are kept to a minimum.

Hydrocone and Hydroset are Allis-Chalmers trademarks.

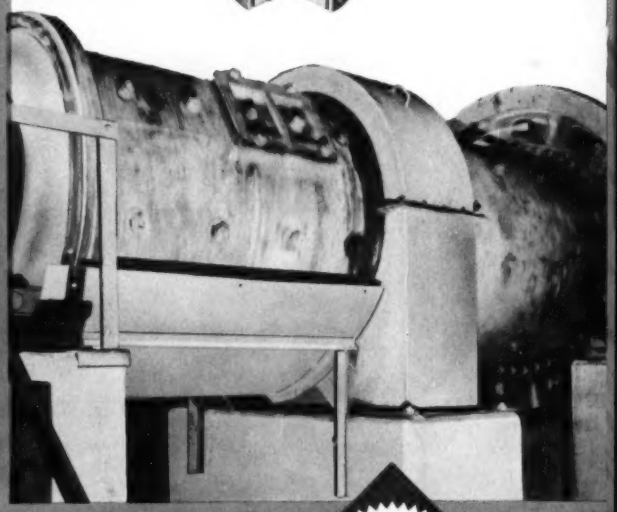


"Manufactured" SAND

from ALLIS-CHALMERS Rod Mills

An Allis-Chalmers rod mill converts unsalable material into specification sand. It prolongs productivity of natural reserves. It produces sand where natural sands are unavailable or unusable.

Processing specification sand or coarse aggregate from rock, and grinding aggregate or natural sand, are particularly abrasive and difficult jobs. That's why Allis-Chalmers rod mills are so well suited for the job. Basically, the A-C rod mill is a simple, rugged machine . . . a grinding mill that requires little attention, yet provides continuous, dependable performance.



ALLIS-CHALMERS

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WRITE FOR LITERATURE

I would like bulletins on.....
(type of equipment)

Explanation of process or problem.....

.....

.....

Name.....

Title.....Company.....

Address.....

City.....Zone.....State.....

A-4818

ALLIS-CHALMERS
Industrial Equipment Division
Milwaukee 1, Wisconsin

PUBLICATIONS

• **Sewer Pipe** — "Transite Building Sewer Pipe" is an 8-page illustrated brochure that contains information on asbestos cement pipe for connecting house drains with street sewers or septic tanks. It describes and illustrates a feature introduced to speed the assembly of the pipe, the Ring-Tite coupling with factory prepositioned rubber rings. Fittings are also covered and there is a full page chart on various method of pipe connection. JOHNS-MANVILLE, 22 E 40TH ST, NEW YORK 16, N. Y.

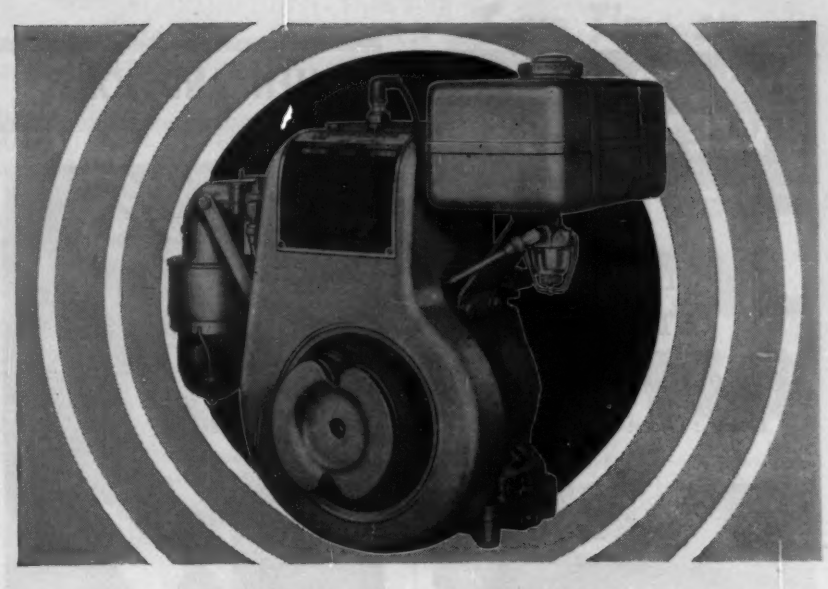
• **Compactor Description**—Bulletin S-67-455 describes the segmented four-wheel K-45 Kompactor. Illustrated, the 8-page booklet tells of the potential savings in time and costs that can be achieved with these units.

Operating on the interrupted pressure principle, the K-45 exerts all of its compaction in a downward direction. Each of the four roller wheels is faced with staggered rows of heavy, steel pads that form the compacting surfaces. The principle of operation is said to prevent loose material from flying ahead of the wheel.

Brief specifications are included on the last page of the booklet. BUFFALO-SPRINGFIELD ROLLER CO, SPRINGFIELD, OHIO.

• **High Strength Steels**—A new publication, Design Manual for High Strength Steels, is just off the presses. It is a 174-page working handbook for architects and engineers and was compiled to fill a need growing out of the development and widening applications of high-strength low-alloy steels. This is a specific class of steel in which the enhanced mechanical properties and, in most cases, improved resistance to atmospheric corrosion are achieved by moderate additions of one or more alloying elements other than carbon.

It contains numerous charts and formulas, not only for high-strength steels, but also for structural carbon steel, and can therefore be used as a multi-purpose design manual. Nomographic or alignment charts eliminate much of the time formerly spent in design calculations. These charts can also be used to check design figures and, by covering a wide range of stresses, are adaptable to any design strength level the engineer may wish to use. One section of the book is devoted to a discussion of design against corrosion. Write for ADVL-215-54. U. S. STEEL CORP., 525 WILLIAM PENN PL., PITTSBURGH, PA.



Another NEW
WISCONSIN Heavy-Duty
***Air-Cooled* ENGINE**
The Model BKN 3.2 to 6.8 H.P.

Brand new in design, this engine meets the increasing demand among original equipment manufacturers and engine power users for a compact, light weight, HEAVY-DUTY Air-Cooled Engine that offers a broad, flexible power range.

With a 17.8 cu. in. displacement, the new Model BKN delivers 6.8 hp. at its top speed of 3600 rpm., and 3.2 hp. at a minimum speed of 1600 rpm. Incorporated in this engine are all of the traditional Wisconsin Heavy-Duty features, including tapered roller bearings at *both* ends of the crankshaft; high tension rotary type *outside* magneto with Impulse Coupling; pump-circulated, constant-level splash lubrication system and efficient AIR-COOLING at all temperatures from sub-zero to 140° F.

For detailed specifications write for Bulletin S-183.

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WET JOBS

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City of Grand Rapids, Michigan
Contr.: Owen-Ames-Kimball

DRIED FAST; NO SHEETING
SILT PROBLEM OVERCOME

IN ONE MONTH from installation, the concrete base slab (4 ft thick, 71 ft diameter) was completed—deep down at 35 ft below water level. Half month more finished monolithic circular wall, 40 ft high.

Such were the speeds and savings made possible by Griffin Wellpoint equipment, plus Griffin's long-acquired "know how," which assured correct wellpoint depths, spacings and jetting methods, on this tough-to-handle job.

• Despite 4 ft layer of fine sand and silt, pre-drainage was so thorough that bulldozer could work "on bottom" feeding to crane on trestle. Excavation was open cut, with one-on-one slope. Any wonder this contractor (who had previously tried Griffin "quick-dry" service) came back for a "second helping!"

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MEN AND JOBS

D. H. Redinger

Southern California Edison Pays Tribute to Redinger

Southern California Edison Company has honored David H. Redinger, civil engineer and former superintendent of its Big Creek-San Joaquin River hydroelectric development, by naming after him one of the power reservoirs he helped to build.

At the ceremonies officially naming Redinger Lake, Harold Quinton, Southern California Edison president, paid tribute to the character, engineering and managerial ability Redinger displayed during his more than 30 years of Edison service.

The 35,000 acre-ft Redinger Lake, formed by Dam No. 7, is part of the multi-million-dollar Big Creek project with which Redinger was associated from 1912 until his retirement in 1947. Located in California's rugged High Sierra country 60 miles northeast of Fresno, the development now includes a chain of five major artificial lakes, 13 dams, 6 powerhouses and 18 electric generating stations. Begun in 1911 and still unfolding, it serves the multiple uses of hydroelectric power, irrigation, flood control and public recreation.

In addition to his work on the Big Creek development where he served successively as transitman, assistant engineer, tunnel engineer, and resident engineer before being named superintendent, Redinger served as a member of the Special Board of Consultants, appointed by the Metropolitan Water District of Southern California, to work on the Colorado River Aqueduct.

Gen. Pick Named Chairman Of Harte Engineering Firm

Lt. Gen. Lewis A. Pick, retired chief of the Corps of Engineers, has been elected chairman of the board of directors of the John J. Harte Company, architects, engineers and construction managers, Atlanta, Ga.

As chairman, Gen. Pick will devote his attention to major foreign construction projects, as well as domestic highway, port and industrial developments.

He served as Chief of the Corps of Engineers from 1949 until he retired in 1953, after 37 years of service.

Corps of Engineers Moves W. C. Knox to District Post

Walter C. Knox, resident engineer for the big Woodruff Dam under construction by the Corps of Engineers on the Apalachicola River in Florida, has been appointed chief of the Construction Division of the Corps' Mobile, Ala., District.

In his new job, Knox will supervise river, harbor and flood control projects and military construction work performed by the Corps of Engineers in a 100,000 sq mi area stretching from the Pearl River Basin in Louisiana and Mississippi to the St. Marks River Basin in Florida and Georgia. Projects now under way total about $125 million for civil works and $175 million for military purposes.

Knox, a civil engineering graduate of Cornell University, has spent most of his 25-year career with the Army Engineers in the Mobile District and served as assistant resident engineer on construction of the flood control and power dam at Allatoona, Ga., before his transfer to Florida.

His successor as resident engineer at Jim Woodruff Dam is William R. Coryell, former resident engineer at Maxwell Air Force Base.

West Coast Firm Names Mundal Vice President

Torald Mundal has been named vice president and chief engineer of International Engineering Company, Inc., a subsidiary of Morrison-Knudsen Company, Inc. with headquarters in San Francisco.

During his seven years with the firm, which he joined as chief design engineer, Mundal has helped supervise planning for many of the company's projects around the globe, in-

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MEN AND JOBS

cluding India's Hirakud Dam, the Alcan Project in Canada, and development of San Francisco Bay.

He was formerly a draftsman-designer for Duke Power Company, associate hydraulic engineer with the T.V.A., a resident engineer with the Corps of Engineers in Georgia, and hydroelectric engineer with the Inter-American Construction Company in Argentina.

New Officers in Baker Firm

Michael Baker, Jr., Inc., consulting engineering firm with headquarters in Rochester, Pa., has appointed two new vice presidents.

Richard A. Haber, who served as chief engineer for the Delaware Department of Highways before joining the Baker firm in 1953, becomes vice president of the contract development division. Joseph F. Bontempo, an architect associated with the firm for the last 13 years, will continue his architectural association and take on added responsibilities as vice president.

Men and Jobs Briefs . . .

• **Associations**—The North Carolina Masonry Association elects **Cecil T. Lewis**, of Henderson, as president, succeeding **Thomas F. Bradshaw** of Wilmington . . . **William Gillett** of Steel Products Co. again heads the Producers' Council, Inc., national association of building materials and equipment manufacturers and associations.

Expanding both its laboratory and field activities, The Asphalt Institute opens a new district office in Albuquerque, N. M., and names **Bernard F. Kallas**, formerly with the South Dakota State Highway Department, as assistant in charge of its laboratory activities.

• **Business**—**John M. Brownlie** leaves Macco Corp., Los Angeles contractors, to become associated with Holmes & Narver, Inc., engineers and constructors in Los Angeles . . . **Billy T. Sumner** joins the civil engineering staff of Barge-Waggoner, Inc., Nashville, Tenn., engineers.

Lewis S. Harvey, former chief highway engineer for J. K. Knoerle & Associates, general consultants to the Illinois Turnpike Commission, is named senior associate and chief engineer for Louis Berger & Associates, consulting engineers in East Orange, N. J., and Harrisburg, Pa.

Save Time on Tough Schedules—

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A phone call to Foster will provide exact sections of steel-sheet Piling you need. You can always depend on L. B. Foster Company for the piling you specify — in the exact lengths required — and *on time deliveries.*

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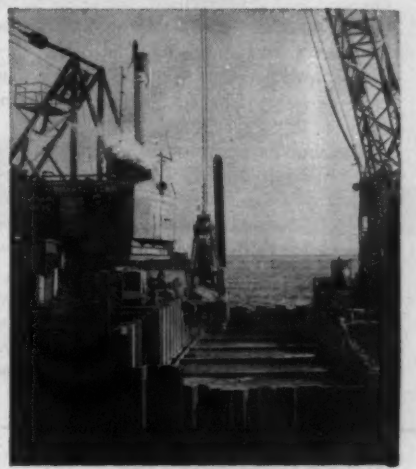

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On sections C-2 and C-3 of the Ohio Turnpike there's no clutter at the paving site. No paver, no water trucks, no men to run them.

Just spreaders and finishers, plus a Dumpcrete or two discharging 4 yards of premixed concrete in 60 seconds.

The automatic central mixing plant is midway on the 10-mile job. Three men run it. 14 Dumpcretes haul its 95,000 yd. production.

Here's the bonus. The single plant supplies concrete for bridges, culverts, walls and widening as well as paving.

"It's an efficient, high-production operation. We like it," says D. W. Winkelman, contractor.

This method cuts costs on small jobs, too. It's approved by 25 state highway departments. Write for bulletins today.

Central mixing plant located midway on job.

Slump, cylinder, beam and air test (above) all O.K.

Manufacturing Division, Maxon Construction Co., Inc.
714 Talbott Building, Dayton 2, Ohio

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Builder's Data	Gen'l Chemistry	Radio
Lumber Data	Chemical Tables	Tele-ision & FM
Air Conditioning	Analytic Chem.	Electricity, AC
Building Constr.	Mech'l Drawing	Electricity, Dc
Reinf. Concrete	Machine Design	AC Motors & Gen'trs.
Piping Data	Machinist's Data	Transformers,
Surveying	Mech. of Materials	Relays & Meters
Surveying Tables	Pwr. Trans. Mach.	
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OBITUARIES

Dale L. Maffitt, 63, general manager of the Des Moines Water Works and 1954-1955 president of the American Water Works Association, died Oct. 26. He received his B.S degree from Drake University in 1914 and began his city service the same year as an assistant chemist with the water works. He served as chief chemist and as assistant to the general manager before becoming manager in 1933. In 1949 he received AWWA's George Warren Fuller Award for his contribution to the advancement of water works practice.

Joseph P. Pride, 76, consulting engineer and expert on levee work, died Oct. 5 in Blytheville, Ark. He served as chief engineer for the St. Francis, Ark., Levee Board for a number of years, and also was consulting engineer in the formation of drainage districts in Arkansas and Missouri. His first engineering position was with the Shiloh National Park Commission. Later he served with the Memphis Park Commission.

Louis C. Hyatt, 64, a consulting engineer, died Oct. 20 in Albany, N. Y. He was graduated from Rensselaer Polytechnic Institute in 1914 and was past president of the Albany Chapter of the National Association of Professional Engineers. Hyatt had opened his own office as a consulting engineer five years ago.

Harry G. Clark, 78, a civil engineer of Syracuse, N. Y., died Oct. 23. He had been associated with the International Paper Co. for 15 years and during World War II he served with the government engineers in Washington.

George V. Salle, 71, retired construction engineer, died at Montclair, N. J., Oct. 20. For 20 years he was New York district manager of Foundation Co. of New York and later vice-president of the H. J. Deutschbein & Co. He helped supervise construction of the Municipal and Woolworth buildings and the Federal Reserve Bank in New York City. During World War II he supervised construction of the U. S. Airbase in Trinidad.

G. G. Page, 46, division engineer for the North Carolina State Highway Department, died Oct. 10. He had been with the department since 1926, with the exception of three and a half years during World War II when he was with private engineering firms.

Fire-resistant, shatterproof panels

made with HETRON® polyester

Now available with U/L label

Even where strict fire codes must be observed, you can almost certainly meet safety requirements with these polyester daylighting panels. These are the *only* such panels now listed by Underwriters' Laboratories, Inc.

In exhaustive flame tests, these panels earned a flame spread rating of 75 or below in the U/L classification system. This compares with flame spread ratings of 100 for untreated red oak, and over 400 for some conventional non-fire-resistant polyester sheet.

These panels are "slow burning" materials as defined by Building Officials Conference of America. They will burn under a blowtorch flame, but snuff out as soon as the flame source is removed. They get this rating because they are made with HETRON, a Hooker fire-resistant polyester resin.

These panels give you not only fire resistance but *all* the advantages of cost-saving polyester construction – great strength, excellent light transmission, resistance to corrosion and rot, warpage and cracking. They are weather-resistant, and stable to sunlight.

These translucent panels, in many colors, both flat sheet and corrugated, are available from several fabricators. We shall be glad to supply you with their names.

For technical data on HETRON resins, write us.

EASY TO INSTALL. Just put sheet where you want daylight. For most industrial buildings, you need no special framing, no flashing or caulking. Panels shown are manufactured by Resolite Corp., Zelienople, Pa.

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BOOKS

Integrated Hydraulics

ELEMENTS OF HYDRAULIC ENGINEERING —By Ray K. Linsley, Jr., and Joseph B. Franzini. 582 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. $9.00.

Here is a book that covers hydraulic engineering as an integrated subject ranging from hydrology through dam and conduit design to water purification and sewage treatment. Through use of common fundamentals it presents as closely related concepts what many engineers consider to be completely divergent fields.

The book is intended as a text for a college senior course. Logical arrangement of subject matter and presentation of many problems for student solution make it well suited in introducing the uninitiated to the many ramifications of the subject. In general it does not seem suited as a reference for experts in the field. But it would be well suited for those wishing to review fundamentals.

Of particular interest is the section on hydrology. It presents a relatively comprehensive treatment of modern hydrologic concepts as related to hydraulic design. Also of special note is a chapter dealing with economic aspects of hydraulic projects. Other subjects covered include water law, hydraulic machinery, irrigation, hydroelectric power, river navigation and flood control.

New Engineering Books

HANDBOOK OF ENGINEERING MATERIALS—Edited by Douglas F. Miner and John B. Seastone. 1,380 pp. John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y. $17.50

ELEMENTS OF HYDRAULIC ENGINEERING—By R. K. Linsley, Jr. and J. B. Franzini. 582 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. $9.00

BOUNDARY LAYER THEORY—By Hermann Schlicting, 535 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. $15.00

THE TECHNOLOGY OF CEMENT AND CONCRETE: VOLUME 1, Concrete Materials —By Robert F. Blanks and Henry L. Kennedy. 422 pp. John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y. $11.00

SIMPLIFIED MASONRY PLANNING AND BUILDING—By J. Ralph Dalzell, 362 pp. McGraw-Hill Book Co., 330 W. 42nd Street, N. Y. 36, N. Y. $6.50.

A POLICY ON GEOMETRIC DESIGN OF RURAL HIGHWAYS—665 pp. Compiled and published by the American Association of State Highway Officials, 917 National Press Bldg., Washington, D. C. $4.00

INTRODUCTION TO ELECTRIC ANALOGUE COMPUTERS—By C. A. A. Wass. 237 pp. McGraw-Hill Book Co., 330 W. 42nd St., N. Y. 36, N. Y. $6.50

CONCRETE MANUAL—A Manual for the Control of Concrete Construction—Sixth Edition. Obtainable from the Bureau of Reclamation, Denver 2, Colo. Attention 841, or the Superintendent of Documents, Washington 25, D. C. $2.50

HYDRODYNAMICS — By Garrett Birkhoff. 186 pp. Dover Publications, 1780 Broadway, New York 19, N. Y. $1.75 paper, $3.50 cloth

Reports & Pamphlets

AMERICAN STANDARD CODE FOR PRESSURE PIPING — (ASA B31.1-1955). The American Society of Mechanical Engineers, 29 West 39th Street, New York 18, N. Y. $4.00

AUTOMOBILE FACTS AND FIGURES: 1955—Automobile Manufacturers Association, New Center Bldg., Detroit 2, Mich.

COMPILATION OF RENTAL RATES FOR CONSTRUCTION EQUIPMENT — 1955: Seventh edition. Associated Equipment Distributors, 30 East Cedar St., Chicago 11, Ill. $5.00

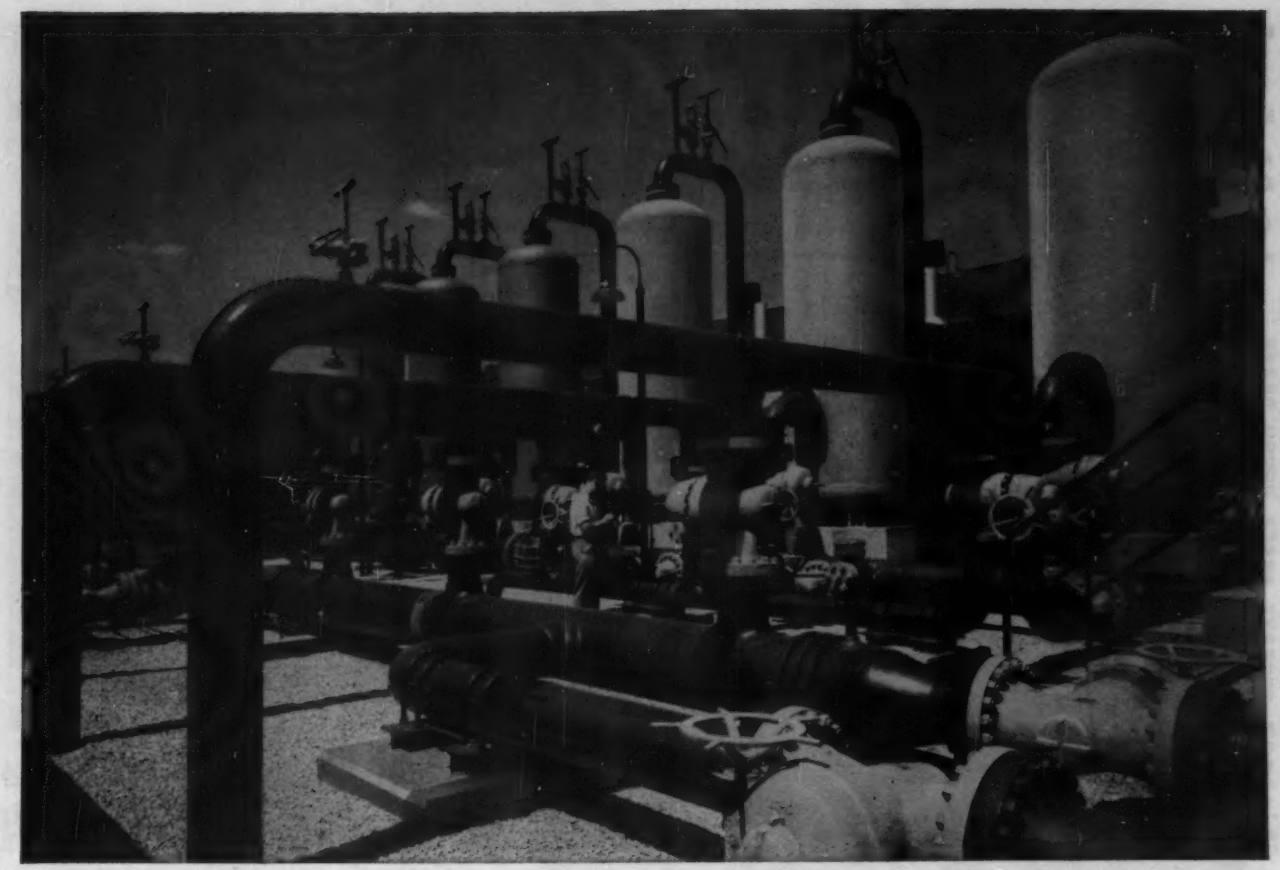
PROCEEDINGS OF THE SIXTEENTH ANNUAL HIGHWAY ENGINEERING CONFERENCE—Bulletin No. 71, Utah Engineering Experiment Station, University of Utah, Salt Lake City.

BUBBLER SYSTEM INSTRUMENTATION FOR WATER LEVEL MEASUREMENT—Report of Investigation No. 23, State Water Survey Division, Urbana, Illinois.

SELECTED METHODS FOR PUMPING TEST ANALYSIS—Report of Investigation No. 25, State Water Survey Division, Urbana, Illinois.

PROCEEDINGS OF THE FOURTH ANNUAL WATER SYMPOSIUM—Engineering Experiment Station, Bulletin No. 51, Louisiana State University and Agricultural and Mechanical College, Baton Rouge, La.

THE FINANCING OF HIGHWAYS BY COUNTIES AND LOCAL RURAL GOVERNMENTS: 1942-51—By the Financial and Administrative Research Branch, U. S. Bureau of Public Roads. For sale by the Superintendent of Documents, Washington 25, D. C. $0.75.



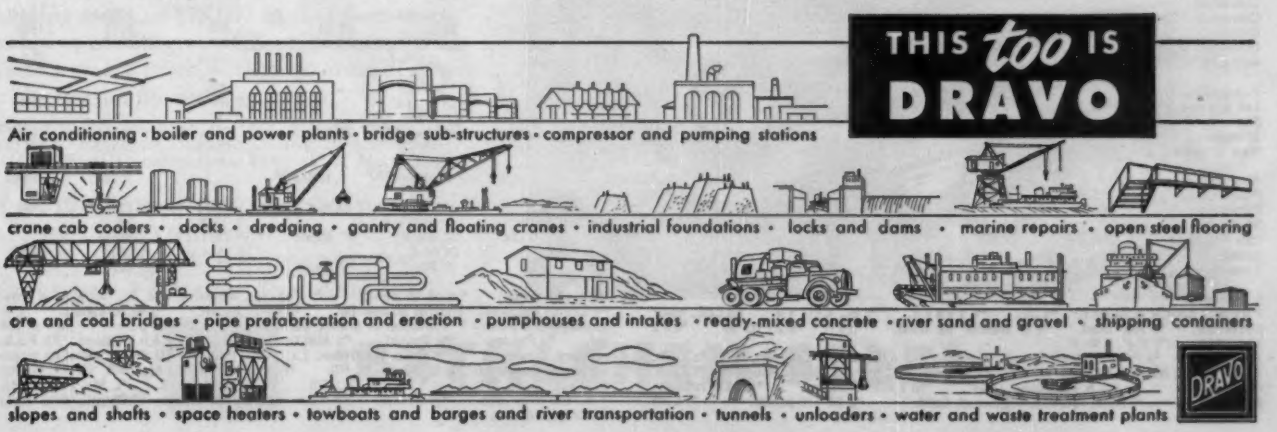
Planned expansion helps United Fuel Gas Company keep pace with growing consumption of natural gas

Natural gas utilities prepare far in advance to meet increasing demands as well as peak loads for the winter heating season. United Fuel Gas Company's Lanham, West Virginia, compressor station is a good illustration.

Built and expanded by Dravo, this key station is arranged so that gas from the southwest can be routed to storage or to lines serving eastern and northern markets. Since completion in 1951, compressor capacity has been increased twice to almost double the original size. Dravo also has erected another complete station nearby for additional storage.

Building gas transmission and distribution facilities is another example of how Dravo serves as a company's "construction department" . . . work that ranges from installing a pump to erecting complete plants on a "turnkey" basis.

For more than 60 years, Dravo has been serving business and industry in many engineering fields, with customer satisfaction considered essential in every transaction. DRAVO CORPORATION, PITTSBURGH 25, PENNA.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slopes and shafts • space heaters • towboats and barges and river transportation • tunnels • unloaders • water and waste treatment plants
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MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
December Materials, and Labor Prices, will appear in December 8, 1955 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload del.* per block		CONCRETE Ready Mixed 1:2:4 ave. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.97a	$3.56a	$3.40	$2.75	$2.75	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.18	$0.195	$12.25g
Baltimore	4.16a	3.75a	3.63	2.70‡a	2.70‡a	2.20‡a	2.75‡a	2.80‡a	1.95‡a	1.90‡a	.18	.18a	12.15
Birmingham	3.72	2.75e	....	2.53n	2.53n	2.08n	2.75	2.75	1.35	1.55	.165	.165	11.00
Boston	4.47b	4.11b	4.06	3.00a	3.00a	3.00a	1.60a	1.75a	....	....	.23	.265a	13.00h
Chicago	3.73a	3.32a	3.35	3.60‡b	3.60‡b	3.75‡b	3.50‡b	3.50‡b	2.25‡	2.25‡	.23	.23b	13.00
Cincinnati	3.95c	3.55c	3.73	2.19‡c	2.24‡c	2.24‡c	2.54‡c	2.54‡c	....	....	.195	.225a	11.60
Cleveland	N.A. in C.L.	3.34e	....	2.05ef	1.85f	1.65	4.10‡a	4.10‡a	3.35‡a	3.15‡e	....	.22	15.45
Dallas	3.15a	2.85a	2.93	2.18	2.28	1.84	2.22	2.38	....	....	.11e	.2675	9.40
Denver	4.44a	3.94a	4.44	1.85	2.00	1.20	....	....	....	....	.23	.255a	10.50
Detroit	3.89a	3.30a	3.54	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	.21	.24a	12.80
Kansas City	4.10b	3.90b	3.90	1.65	1.65	2.00‡a	2.00‡a	2.00‡a	....	....	.20a	.24c	12.75b
Los Angeles	4.92ck	4.46ck	5.40	2.31‡a	2.51‡a	2.31‡a	2.16‡a	2.31‡a	....	....	.145/m	.255m	12.46lk
Minneapolis	4.20a	3.79a	3.71	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	....	....	.19	....	13.25f
Montreal	3.11d	2.86d	....	2.20‡a	2.20‡a	2.25‡a	1.90‡i	2.20‡i	....	....	.17	.17a	10.80ek
New Orleans	3.55a	3.15a	3.48	2.44	2.44	2.00	....	....	1.45	1.65	.275	....	12.90
New York	4.26a	3.85a	3.63	3.05bk	3.05bk	2.00bk	2.80bl	2.80bl	....	....	....	....	15.50an
Philadelphia	3.73/4.12‡a	3.42/3.79‡a	3.58/3.63‡	2.85‡op	2.85‡op	2.35‡op	2.45‡	2.55‡	2.00	2.35	.22/.26	....	13.20de
Pittsburgh	3.75a	3.56a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.25d	.31	14.00
St. Louis	3.70/3.93c	3.25/3.51c	3.55/3.72	3.25am	3.00am	2.40/3.00am	1.60j	1.70j	1.50	1.50	.22	.28c	12.90
San Francisco	3.83c	3.39c	....	2.07	2.07	2.17	2.22	2.22	....	....	.21	.28cl	12.15c
Seattle	4.80a	3.55a	5.95k	3.50‡bm	3.50‡bm	3.50‡bm	4.00‡bm	4.00‡bm	....	....	.26	.3515	12.30y
Toronto	3.97	3.77	3.77	2.25	2.25	1.85	2.00	2.00	2.00	2.00	.25	.35e	14.95

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots, destination price. *h LCL.

SAND GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 3% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *o 1–3 mi zone. *p Add 10¢ for ea. add'l mi zone.

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *i Less 2% for cash *j F.o.b. plant San Rafael. *m F.o.b. yard.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 25 cu. yds or more *c 10–100 cy. brackets. *d 1–3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1:2¼:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for paymen within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.90†	Buffington, Ind	$2.85†	Steelton, Minn	$2.95†	Muskegon, Mich	$3.00†	Toledo, O.e	$2.90†
Clinchfield, Ga	2.90†	Independence, Kan	2.80†	Leeds, Ala	2.75†	Saginaw, Mich	3.00†	Milwaukee, Wis	3.05†
Kingsport, Tenn	2.90†	Hannibal, Mo	2.85†	Duluth, Minn	2.95†	Wyandotte, Mich	3.00†	Green Bay, Wis	3.05†
West Des Moines, Iowa	2.95†	Northampton, Pa	2.90†	Hudson, N. Y	2.75†	Buffalo, N. Y	3.25†	Ironton, O	2.90†
Nazareth, Pa	2.90†	Universal, Pa	2.95†	Alpena, Mich	2.90†	Oswego, N. Y	3.15†	Montreal City	2.56
Bath, Pa	2.90†	Waco, Tex. (+ 10¢ tax)	2.85†	Detroit, Mich	3.00†	Cleveland, O	2.95†	W. Winfield, Pa	3.00†

† *Prices to hold for fourth quarter of* 1955.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

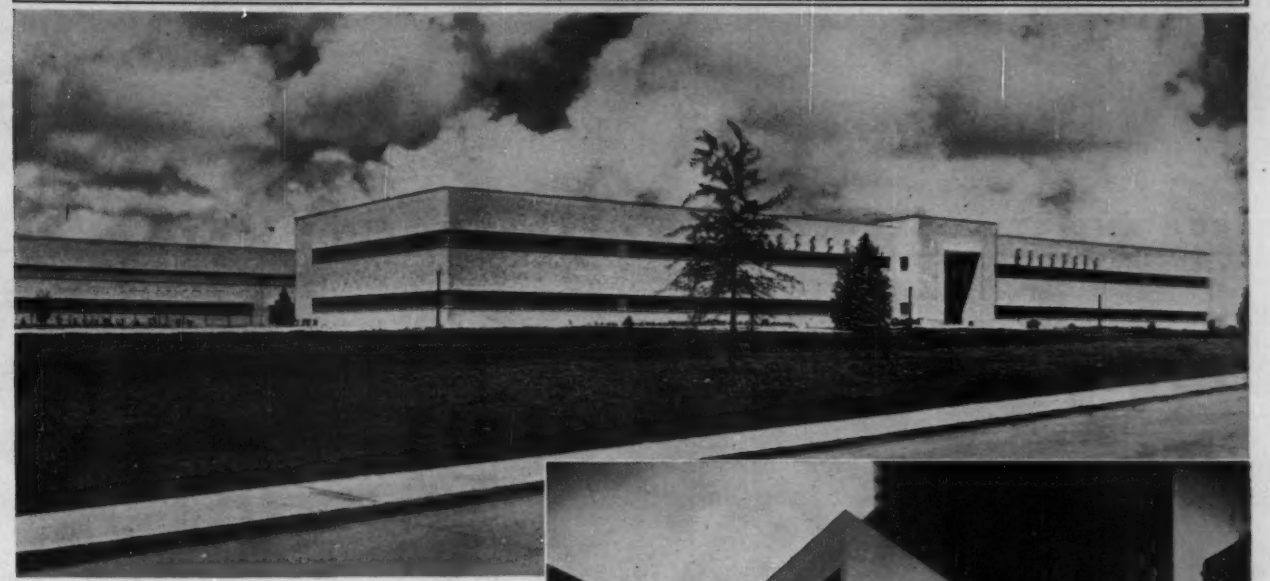
	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	.....	.....	.....	$26.00	$33.25	$0.115	$0.23	$0.125Pw	$0.27Pw	$0.15	$0.15	$0.25
Baltimore	150.00‡	75.00‡	.....	21.00i	.....	.085i	0.175i	.09iwE	.18iwE	.09i	.095i	0.185i
Birmingham	.....	57.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00ap	23.00ap	22.00ar	22.00ar	.09aF	.....	.10a	.145aG	.22aG
Chicago	155.00‡	85.00‡b	3.50/3.55‡j	20.85b	30.85b	19.85bv	29.85bv	.094bwH	.1740bwH	.0775b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	73.00d	5.03g	23.00A	.....	23.00A	.....	.1025AwF	.....	.....	.1025AG	.18AG
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	28.91	50.44	.098	.1087	.1960
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	104.00	.....	27.21	.....	27.21v	.....	.1188wI	.....	.0966	.....	.211
Kansas City	e	e	e	18.00el	.....	17.50v	.....	.07•wJ	.....	.055c	0.11	.....
Los Angeles	e	.....	e	16.00dmx	.....	16.00dsx	.....	18.00dx K	.....	17.00•v	.0825j	.1725j
Minneapolis	.....	.....	2.97k	25.00	.....	25.00	.....	0.105w	.....	C.095	.1075	.....
Montreal	e	e	e	27.00n	39.60n	.135n	.198n	16.50nuE	20.90nuE	.132n	.197ns	.239ns
New Orleans	.....	.....	.....	17.50w	.....o	17.50ew	.....o	.085ew	.....o	.085B	.085BI	.....
New York	.....	.....	2.85f	23.89qCD	44.32qD	22.89wCD	43.57wD	.1923wCDF	.1889wDF	.....	.1023CD	.1918B
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.09wF	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00E	40.00E	.098	.11	.224
St. Louis	.....	.....	.....	18.76f	.....	.1704	.....	0863fwM	.....	0.1575	.13	.....
San Francisco	.....	67.50c	.....	17.50g	33.00g	17.50gkv	33.00gkv	20.00gN	37.50gN	18.75v	.085y	.....
Seattle	.....	.....	.....	17.50k	38.00k	17.25kv	.....	24.50K	.....	19.75kv	.085k	.095kr
Toronto	.....	.....	4.03	23.80	46.67	0.19	0.24	0.20w	0.25w	0.17	0.20	.24

h Delivered.

PAVING BRICK & BLOCK: *a CL. *b 3 x 4 x 8. *c 2¼ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 6# treat. *g 3" *h 2" tr, 8# *i 3 x 3½ x 8½. *j 2½", 6 lb. tr.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50–110 penetr. *l Less than 100 penetr. *m 40/80 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *q 40/85 penetr. *r in customer's drums. *s Shipped in drums, per drum. *t 85/200 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *C Bulk. *D Prices based on transporting to manhattan via truck. *E RC. *F Also RC. *G Also MS, SS. *H RC 0–5 incl. *I MC 4. *J MC, RC .0675. *K MC 3, 4 & 5. *L Ms. *M MC 1–5, RC 1–5, .069. *N MC 3. *P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums.

ON THE NEWS FRONT WITH STRUCTURAL STEEL



New Plant for Western Electric ▲

Communications devices for both the Bell Telephone System and the Armed Forces are being manufactured in Western Electric Co.'s new plant at Winston-Salem, N. C. Built on a framework of Bethlehem structural steel, the manufacturing building has a main floor and partial lower floor with a total area of 452,000 sq ft. A portion of the building is equipped with both general-comfort and special-process air-conditioning.

Architect: Walter Kidde Constructors Co., Inc., N. Y. C.; *general contractor:* Western Electric Co., Inc., N. Y. C.; *steel fabricator:* Carolina Steel and Iron Co., Inc., Greensboro, N. C.; *steel erector:* Craven Steel Erecting Co., Greensboro.

Office Building on Fifth Avenue ▶

The new 19-story Amoco Building on Fifth Avenue, with a steel framework containing 1800 tons of Bethlehem Structural Shapes, houses the general offices of the American Oil Company. The fully air-conditioned building contains 173,000 sq ft of floor space, exclusive of the ground floor. Exterior trim is white glazed brick, with large areas of glass to the north and west.

Architect: Emery Roth & Son; general contractor: Psaty and Fuhrman, Inc.; steel fabricator and erector: Schacht Steel Construction, Inc., all of New York.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$4.60	$4.50	$4.65	$0.25	.....	$94.50	$113.00	$5.825	$7.90	$5.625	.....
Chicago Area	4.60	4.50	4.65	9.25	$5.45	94.50	113.00	5.825	7.90	5.625	.....
Pittsburgh Area	4.60	4.50	4.65	9.25	5.45	94.50	113.00	5.825	7.90	5.625	$11.50
Buffalo Area	4.60	4.50	4.65	9.25	5.45	94.50	113.00	5.825	7.90	5.625	11.50
Cleveland	.....	.....	4.65	9.25	5.45	.....	.....	.....	.....	.....	11.50
Youngstown Area	.....	.....	4.65	.....	.....	.....	.....	.....	7.90	.....	.....
Geneva	4.60	4.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	.....	.....	.....	.....	5.45	.....	.....	.....	7.90	.....	.....
Pueblo	4.90	5.35	5.10	.....	.....	.....	95.00	5.825	7.90	5.625	12.40

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot Rail steel	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	$7.63	$7.42	$7.42	$38.00‡	$42.00‡	
Baltimore	7.63	7.00*j*	.....	44.00	47.00	
Birmingham	7.28*t*	7.08*t*	7.08*t*	51.00*p*	57.00*p*	
Boston	8.13*a*	7.82	7.82	44.00	48.50	4 × 16 in., No. 5 & 10 wires—Joliet, Ill., Donora, Pa., Monessen, Pa. $3.40
Chicago	7.28	6.23*gu*	6.23*gu*	49.00‡	60.00‡	
Cincinnati	7.75*ak*	7.56*rv*	.....	41.00*mn*	45.50*mn*	4 × 12 in., No. 8 & 12 wires—Joliet, Ill., Donora, Pa., Monessen, Pa. $2.47
Cleveland	7.91	6.41*s*	.....	41.00‡	45.50‡	
Dallas	9.05	7.25	7.25	49.00	52.00	
Denver	8.75	7.80*c*	.....	54.00*n*	60.00*n*	6 × 6 in., No. 6 & 6 wires—Joliet, Ill., Donora, Pa., Monessen, Pa. $3.57
Detroit	7.75	8.02	.....	55.50	66.00	
Kansas City	7.95*a*	7.75	.....	49.00	60.00	
Los Angeles	8.15/*d*	7.00	.....	54.50	60.50	
Minneapolis	7.64*d*	8.06*b*	8.06*b*	42.50	47.00	
Montreal	7.70–8.15*C*/7.75–8.15*A*	7.50/8.65*i*	7.50/8.65	46.00*h*	51.00*h*	
New Orleans	.....	6.20*akz*	.....	66.00	60.00	
New York	7.77	7.35*y*	7.35*y*	44.50*no*	51.00*no*	
Philadelphia	7/7.15	7.50/7.45	.....	38.00‡	42.00‡	
Pittsburgh	6.98	7.37*z*	6.95	39.78	41.90	
St. Louis	7.65*s*	6.75*e*	6.75*c*	57.00*l*	80.00*l*	
San Francisco	8.20	7.45*j*	.....	44.00	52.25	
Seattle	5.35*e*	7.00*cj*	.....	53.50*nr*	59.50*nr*	
Toronto	8.40*	6.40	6.40	53.50*nq*	67.50*nw*	

EXTRAS, per cwt.—Quantity: less than 700#, +50¢; 700–1499#, +25¢; 1500–7999#, +10¢. Size: #2 +$2.20; #3 +$1.10; #4 +80¢; #5 +62.5¢; #6, #7 +45¢; #8, #9, #10 +30¢. Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job). Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–500 tons, +50¢ but not over $4500; 20–200 tons, +60¢ but not over $2000; 5–20 tons, +70¢ but not over $340; under 5 tons, +85¢ but not over $70. Design only: +60¢.

Quantity extras, per cwt.: under 100#, +$3; 100–399#, +1.25; 400–999#, +30¢; 1000–1999#, +10¢; 2000–4999#, base price; 5000–9999#, −10¢; 10,000–19,999#, −30¢; 20,000–29,999#, −50¢; 30,000# and up, −70¢.

*‡ Delivered *a 2000–9999# *b 10,000–15,999#, fob city *c 20 tons or over *d 10,000–19,999# *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more. *q 3/ *r 2% off for cash *s 2,000–4,999# *t add 15¢ del. *u add 0.25¢ switch *v incl 15¢ del. *w 3.5/ *x add 5¢ switch *y add 30¢ del. *z add 10¢ del. *A American made. *C Canadian made. † Number system replaces inch system of classifying bar sizes. New system is based on number of eighth inches in diameter of bar. *• Aver. of Canadian & American.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEX*a*	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 12" Saw Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T std. 8 in. s.s.	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T std. 12 in. s.s.	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T 24 in. ds.	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T 36 in. ds.	CLAY DRAIN TILE ASTM C4-24 PER 1,000 ft., carload lots, f.o.b. 6 in.	CLAY DRAIN TILE ASTM C4-24 PER 1,000 ft., carload lots, f.o.b. 8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 24 in.
Atlanta	113.6	$1.52	$2.53	$.545	$1.27	$4.82	$12.925	.....	.....	$0.90*m*	$3.40*m*
Baltimore	122.9	1.52	2.53	.595	1.1475	4.59*v*	12.905	$178.20	$274.80	1.01	2.75
Birmingham	109.3	1.52	2.53	.42	.75	3.30*w*	10.50*w*	260.00‡	400.00‡	1.25*m*	2.78*m*
Boston	125.5	1.54	2.32	.63*qrt*	1.215*qrt*	4.95*qrt*	12.505*qrt*	197.40*r*	303.60*r*	1.54*mg*	3.65*mg*
Chicago	122.9	1.52	2.32	.77*m*	1.48*m*	6.25*m*	19.00*m*	150.00‡	270.00‡	1.00	3.65
Cincinnati	118.0	1.54	2.40	.665*t*	1.2825*t*	4.905*t*	12.505	240.00	370.00	.80*m*	2.95*m*
Cleveland	123.6	1.54	2.40	.546*s*	1.053*s*	4.32*t*	11.48*t*	158.00*m*	245.65*m*	.85*m*	3.25*m*
Dallas	125.7	1.54	2.66	.439	.709	4.00*b*	9.17*b*	.....	.....	.49	1.60
Denver	131.4	1.62	2.66	.45*n*	.78*n*	3.48*n*	.....	.....	.....	.74*m*	2.50*m*
Detroit	123.9	1.54	2.40	.80	1.55	6.15	16.80	240.00*m*	370.00*m*	.95	3.82
Kansas City	124.7	1.54	2.40	.56	1.00	4.13	11.20	250.00	480.00	.90	2.90
Los Angeles	131.1	1.62	2.32	.67*l*	1.46*l*	5.97*l*	14.89*l*	228.20*l*	348.90*l*	.95	2.75/*f*
Minneapolis	131.0	1.57	2.53	.78*mo*	1.42*mo*	6.25*mo*	.....	.....	.....	1.66*h*	4.47*h*
Montreal	.....	.....	.....	1.07*u*	1.73*u*	5.52*u*	8.93*u*	.....	.....	1.17*h*	3.11*j*
New Orleans	116.0	1.52	2.53	.51	.925	4.91	.....	280.00*p*	460.00*p*	.65	2.29
New York	121.5	1.54	2.32	.85	1.62	6.33	16.49	.....	.....	1.15	3.00
Philadelphia	120.9	1.52	2.32	.67	1.29	5.08*v*	12.65*v*	300.00‡	350.00‡	1.60*h*	3.95*h*
Pittsburgh	124.7	1.54	2.32	.468*m*	.864*m*	3.86*m*	9.78*m*	152.00	244.00	1.05*h*	2.50*h*
St. Louis	119.3	1.52	2.40	.56	1.03	4.22	9.80	180.00*l*	380.00*l*	1.30*il*	2.80*il*
San Francisco	131.1	1.62	2.32	.74*d*	1.62*d*	6.59*d*	16.47*d*	235.00*l*	392.00*l*	1.05*m*	3.30*m*
Seattle	131.1	1.62	2.32	.51*b*	.91*b*	.....	.....	150.00*c*	.....	.90*k*	2.85*k*
Toronto	.....	.....	.....	.76	1.425	5.70	.....	157.00	280.00	.87	3.05

*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote

	Mill	2½ & 3 in., Butt Weld‡ Black %	2½ & 3 in., Butt Weld‡ Galv. %	3½ to 6 in., Lap Weld‡ Black %	3½ to 6 in., Lap Weld‡ Galv. %	Mill	2½ & 3 in., Butt Weld‡ Black %	2½ & 3 in., Butt Weld‡ Galv. %	3½ to 6 in., Lap Weld‡ Black %	3½ to 6 in., Lap Weld‡ Galv. %
Lorain, Ohio		28.00	10.75	18.50*a*	+4.25*a*	Sharon, Pa.	28.00	10.75	16.50*a*	+1.25*a*
Aliquippa, Pa.		28.00	14.25	13.50*a*	+4.25	Wheatland, Pa.	28.00	10.75	17.50*d*	3.25*d*
Sparrows Pt., Md.		26.00	8.75	.....	.....	Etna, Pa.	28.00	14.25	.....	.....
Benwood, W. Va.		28.00	10.75	17.50*d*	+0.25*d*	Fontana, Calif.	16.50*b*	2.75*b*	7.00*ab*	+7.25*ab*
Youngstown, O.		28.00	10.75	17.50*ab*	+0.25*a*					
Indiana Harbor, Ind.		27.00	9.75	.....	.....					

† Threaded and coupled. *a* 3½ to 4 in. *b* Continuous weld. *c* 5 and 6 in. *d* 6 in.

*‡ Delivered. *a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE 3 PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 109.3; Burlington, N. J., 118.1. *b Extra strength ASTM C 200–44T *c 4-in., $90 *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76–41 *h reinforced, ASTM C 75–41 *i reinforced, ASTM C 76–37 *j centrifugal; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTMC 13–40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60–1941 specs. used *v standard strength *w as; add 20% for d.s.

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.("based on approx. $200 per net ton): Butt Weld ⅛ in., 8½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 70½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.49; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 80.25, galv., + 76.50; 1¼ in. black, + 50.25, galv. + 76.0, 1½ in. black, + 46.75 galv. + 74.25; Lap Weld —2½ in. to 3 in. black + 52.50 galv. + 78.50; 4½ in. to 6 in. black + 49.50 galv. + 73.75 Add freight rates plus 3% transportation tax to get destination price.

INCREASING FOOTAGE OF DIAMOND CORE DRILLS

with Stoody Acetylene Tube Borium

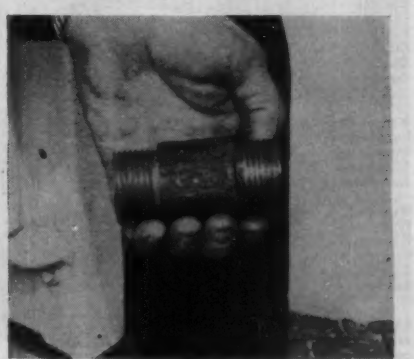
When we think of diamond studded tools, hard-facing seems unnecessary... after all, the diamond is nature's hardest, most wear resistant substance. Although core bits and their connecting reamers are set with industrial diamonds for extending overall life, the barrels and flutes don't benefit by these inserts. Here's how one operator increased footage of sampling drills from 400 or 500 feet to between 2000 and 3000 feet.

After making comparative tests of several hard-facing materials, 30-40 Acetylene Tube Borium (containing tungsten carbide particles) was selected because of its excellent wear resistance. Reamer bodies were hard-faced with a series of parallel longitudinal beads, the deposits extending around those areas containing the diamond inserts.

Since walls of the core barrels are thinner at each end because of internal threads, wear weakens these areas quicker than the remaining barrel. By hard-facing back 6" from each end and adding extra protection over the threaded areas overall barrel life is equalized. When the hard metal is gone the entire barrel has delivered maximum service. Flutes, attaching core barrels to drill rods, are hard-faced on outside diameters.

Straight edge of saw blade shows how hard-faced end of barrel has held its size.

Stoody Hard-Facing Alloys afford maximum protection to all wearing equipment. For recommended alloys and application technique on your specific wear problems refer to the



Notice how hard-facing beads surround but do not cover diamond inserts.

Stoody Hard-Facing Guidebook. Your Stoody dealer has a copy for you or write direct.

STOODY COMPANY

11976 East Slauson Avenue

Whittier, California

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft.
(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	12x12 Rgh	PLYWOOD Rail freight increment (See note for base price) ⅜"	¼"
Atlanta † Baltimore * Birmingham † Boston * Chicago ** Cincinnati * Cleveland ** Dallas ‡‡ Denver * Detroit ‡ Kansas City * Los Angeles 1 Minneapolis # Montreal ab New Orleans † New York 2 Philadelphia ‡ Pittsburgh † St. Louis # San Francisco A Seattle † Toronto a	**$78.00** **93.00** *134.00g* **81.50** *105.00* **101/107c** *90.00n* **95.00** *101.00* **93.75** *98.75* **94.00** ..... **75.00** *Not in stock* **115.00** *125.00* **130.00** *135.00* *104.00* **92.00** *170.00* **102.00** *116.50* **112.50** ..... **110.00** *127.00* **119.00** *76.00* *72.50* **97.00** *131.00*	**$80.00** **96.00** *134.00g* **83.50** *105.00* **110/115c** *90.00n* **98.00** *101.00* **96.75** *101.00* **96.00** ..... **80.00** **116.00** *125.00* **130.00** *135.00* *104.00* **100.00** *170.00* **102.00** *116.50* **115.50** ..... **110.00** *127.00* **122.00** *76.00* *72.50* **100.00** *116.00*	**$75.50** **95.00** *134.00g* **80.50** *105.00* **105.00c** *123.00* **91.00** *113.00* **83.00** *110.00* **93.00** *118.00* **72.00** *121.50* **108.00** *130.00* **126.00** *135.00* *104.00* **92.00** *170.00* **94.50** *119.00* **125.00** *127.50* **110.00** *135.00* **125.00d** *131/139j* *76.00* *72.50* **98.00** *118.00*	**$74.00** **95.00** *134.00g* **87.50** *108.50* **105.00c** *123.00* **106.00** *112.00* **90.50** *111.50* **102.00** *107.00* **70.00** *122.50* **108.00** *130.00* **130.00** *139.00* *104.00* **92.00** *170.00* **97.00** *126.50* **127.50** *127.50* **110.00** *135.00* **130.00d** *131/138e* *86.00* *72.50* **97.00** *126.00*	**$77.50** **96.00** *134.00g* **90.50** *108.50* **105.00c** *123.00* **114.00** *112.00* **94.75** *113.50* **102.00** *107.00* **70.00** *122.50* **115.00** *130.00* **135.00** *139.00* *104.00* **116.00** *170.00* **92.00** *126.50* **127.50** *127.50* **110.00** *138.00* **130.00e** *131/138e* *86.00* *72.50* **103.00** *126.00*	**$81.00** **104.00** *134.00g* **95.50** *105.00* **105.00c** *123.00* **115.00** *113.00* **103.00** *113.50* **103.00** *109.00* **65.00** *122.50* **116.00** *150.00* **145.00** *140.00* *104.00* **125.00** *170.00* **96.00** *126.50* **127.50** *127.50* **117/137** *131/163* **110.00** *138.00* **131/135c** *133/140e* *86.00* *72.50* **105.00** *126.00*	**$79.00** **114.00** *138.00g* **100.50** *105.00* **110.00** *124.00* **110.00** *121.00* **110.50** *136.00* **103.00** *126.00* **130.00** *125.00* **116.00** *178.00* **135.00** *160.00* *121.00* *175.00* **120.50** *139.00* **167.50** *165/175* **117/137** *136/158* **123.00** *130.00* *190.00e* *107.00* *85.00* **120.00** *126.00*	..... *$145.00* *105.00* ..... *196.00* ..... *196.00* ..... *196.00* ..... *187.75* *190.00* ..... *180.00* *181.00* *175.00* ..... *148.00* *139.00* *170/180* ..... *158.00* *145.00* *190.00* *180.00* *145.00* *90.00* *126.00*	..... *$145.00* *105.00* ..... *196.00* ..... *196.00* ..... *196.00* ..... *140.80* *190.00* ..... *205.00* *181.00* *175.00* ..... *148.00* *139.00* *170/180* ..... *158.00* *145.00* *180.00* *145.00* *90.00* *126.00*	..... **$170.00** **120.50** ..... **136.00** **131.75** ..... **128.00** .... **105.00** ..... **182.00** **250/270** **214/224** ..... **120.00** .... **108.00** ....

The year's biggest truck news is right here on this page!

New INTERNATIONALS!

All-Truck Built to save you the BIG money!

It's here! A great new line of light, medium and heavy-duty INTERNATIONALS from 4,200 to 33,000 lbs. GVW. They're *all truck*, with no passenger car components asked to do a truck job . . . with more features than ever for BIG money savings, in operating and maintenance costs.

These new INTERNATIONALS are powered by a range of 10 gasoline and LPG engines designed specifically for trucks. They give you high power and torque in the normal driving range where you can *use* it—in traffic, heavy going, up hills. And they give you this top performance at wear-reducing, money-saving rpm.

They have smart, functional styling for easy, economical maintenance, even on the roughest truck jobs. They have driver-saving cabs that let drivers work longer without fatigue. First chance you get, see these good-looking, easy-working, BIG money-saving INTERNATIONAL Trucks.

Drive in real comfort! Comfort-angled steering. Hood is low for closeup view ahead. There's "Quiet-ride" acoustic roof lining, draft-free door seals in both standard and optional deluxe cabs, plus a wide choice of solid and two-tone exterior colors. New deluxe cab has additional color-keyed interior, deluxe steering wheel, foam rubber seat, fiber glass insulation, deluxe chrome trim.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

INTERNATIONAL® TRUCKS

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McCormick® Farm Equipment and Farmall® Tractors

Observe SAFE DRIVING DAY, Thursday, December 1. . . Drive Carefully Always

No costly maintenance problem

...here

On this steel plant, roofs and sidewalls of Johns-Manville Corrugated Transite withstand corrosive fumes . . . will never corrode or rot.

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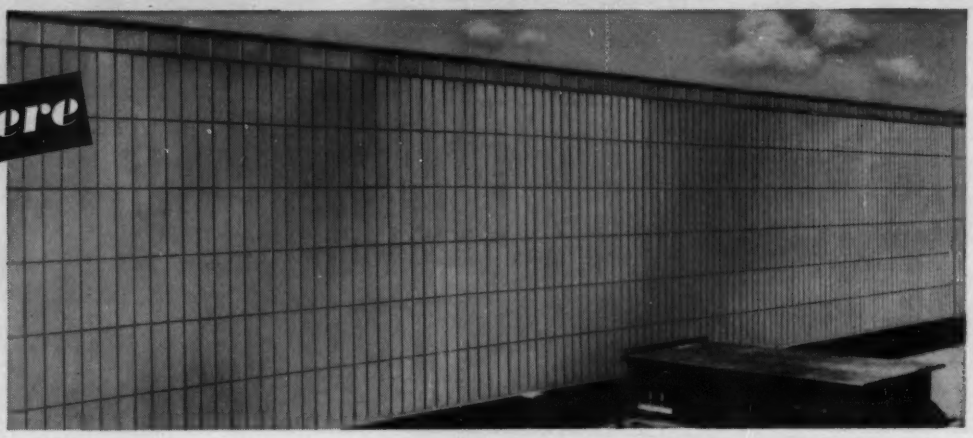


On this aircraft plant, stonelike Corrugated Transite sidewalls offer years of service without paint or special treatment to preserve them.

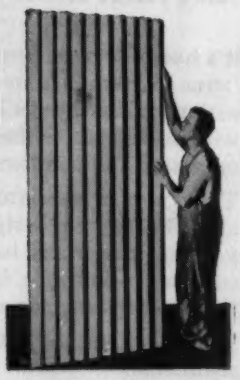
build with Johns-Manville Corrugated Asbestos Transite

For maintenance-free roofs and sidewalls plus protection from fire, rot and weather

YOU SAVE MONEY on construction and maintenance when you build with Johns-Manville Corrugated Transite®. Corrugated Transite comes in large sheets that require a minimum of framing . . . permits fast economical construction of industrial, commercial, institutional and agricultural buildings.

Made of asbestos and cement, Corrugated Transite is practically indestructible. It never needs paint or special treatment to preserve it . . . it's fireproof, rotproof and weatherproof. Corrugated Transite is also used increasingly for interiors. The streamlined corrugations and attractive shadow lines offer interesting design possibilities.

Investigate Johns-Manville Corrugated Asbestos Transite and learn how you can build quickly and easily . . . have an attractive, long-lasting, trouble-free structure. Write Johns-Manville, Box 158, Department EN, New York 16, New York. In Canada write 565 Lakeshore Road East, Port Credit, Ontario.



- Large sheets go up quickly
- Easy to fasten to steel
- Easy to nail to wood
- Easy to saw
- Easy to drill

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JOHNS-MANVILLE JM PRODUCTS **Johns-Manville**

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$139.75p	$139.75p	$279.55p	$314.45p	.....	.....	$30.00p	$30.00p	.....	.....	.....
Baltimore	202.00	216.00	404.00	458.00	594.00	679.00	36.00k	41.00k	33.00	21.50	.....
Birmingham	126.00p	142.00p	253.00p	284.00p	354.00p	438.00p	27.00ff	32.00gg	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	283.75†	.....	.....	36.85p	40.35p	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	28.00	30.00	26.00	29.00	.....
Cincinnati	205.00j	215.00j	295.00jdd	.....	.....	.....	45.00j	46.00j	27.50j	27.50j	.....
Cleveland	187.50**	200.00**	.....	.....	.....	.....	39.75	39.75	29.75	24.75	33.50ee
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80bb	28.00bb	34.00bb
Detroit	178.00	190.00	356.00	.....	436.00	498.00	40.50cc	41.00cc	36.00	32.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	29.25	29.25	32.00	27.50	28.50
Los Angeles	r	r	r	r	r	r	27.50§	.....	34.00	34.00	35.00
Minneapolis	181.00p	201.00p	414.00p	201.00pu	.....	.....	41.00*p	47.00	42.00bbe	32.00bbe	44.00bbda
Montreal	165.00aq	181.00au	325.00au	230.00	248.00	.....	39.50	46.00	39.20	22.00	13.75u
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	151.90k	162.00k	222.70ek	245.40kn	.....	.....	41.00	.....	38.00	34.00	...
Philadelphia	156.30	166.80	312.70	375.20	.....	.....	30/34	34/40	27.60	25.60	3.17
Pittsburgh	138.00	156.00	260.00	228.00	297.00	341.00	36.00	46.00g	25.00	23.00	2.97m
St. Louis	147.00cc	168.50cc	338.25cc	465.00cc	446.00	621.50	41.50al	43.00x	.95aa	.75aa	1.30aapo
San Francisco	156.85o*	177.10o*	235.30dda*	.....	.....	.....	39.50	.....	26.60	26.60	26.25
Seattle	225.00cc	250.00cc	350.00cc	250.00ccw	.....	.....	42.00o	54.00o	42.00ahh	37.50hh	3.90mhh
Toronto	138.70	148.90	273.75	222.00f	.....	.....	41.50	50.00	40.50	33.50	30.00

*† F.o.b. yard Roxbury. *a Smooth. *b Per 50 lb. bags. *c 8 x 12 x 12 in.-3 cell. discount for cash. *t 8½ x 8 x 11¼. *u Tax exempt. *v Sand lime. *w 5 x 8 x 12. *y Stacked. *z Pebble lime price per 80 lb. sack. *aa Price per sack. Lime *d Pulverized hot. *e 8% 10th following month. *f 8 x 8 x 12. *g 8½ x 8 x 12. not sold per ton. *bb LCL. *cc Truck delivery. *dd 8 x 12 x 12. *ee Pebble *h F.o.b. trucks, job site N.Y.C. *i Truck load or over. *k $1.00 discount. *l Red lime. *ff 80% common. *gg Select. *hh Incl. § F.o.b. yard. *** Warehouse face. *m Per bbl., 180 lb. *n 7¾ x 7¾ x 12. Speed title. *p Truck lots. *q Pro- delivery. ** F.o.b. Stockton. vincial and Municipal tax extra. *r Not used because of earthquake danger. *s 2%

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 500-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases in oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$18.25	$28.275	$3.26	$3.51	$3.01	$3.10	$2.91	$2.91	$0.60	$55.00
Baltimore	18.00	27.90	2.75	4.25	3.35	2.78	4.25	4.25	.48	50.18
Birmingham	18.25	28.275	3.90	3.40	....	2.78	2.55	2.55	.75ff	33.50ee
Boston	18.00	27.90	....	....	....	3.13g q	2.97eg	2.97eg	.42g	50.50g
Chicago	18.00	27.90	....	....	....	3.17‡u	3.02‡o	3.02‡o	42.00‡Mr	50.00‡
Cincinnati	18.00	27.90	....	....	....	2.88	2.60	2.60	.55y	49.36
Cleveland	18.00	27.90	2.29ppp	2.82gg	2.62eg	2.88q	2.60o	2.60o	.43y	42.70hh
Dallas	18.25	28.65	....	4.05	....	3.50q	3.75o	4.35o	.36	58.50hh
Denver	18.50	28.40	3.29	5.15	3.04	2.78	2.55o	2.55o	.43ff	45.00
Detroit	18.00	27.90	2.35	3.25	2.50	2.88	2.60f	2.60f	.55	46.00
Kansas City	18.00	28.65	3.50	3.00pz	2.65	2.78	2.58o	2.58o	.42	61.95
Los Angeles	18.00	28.15	3.30n	4.50n	4.20n	3.10n	2.25en	l	.64eq	l
Minneapolis	18.00	29.88/28.02	....	....	....	2.88dd	2.60hidd	2.60hidd	.48idd	44.00r
Montreal	.....	21.95	2.95Dff	4.05Eff	3.25Fff	4.05t	3.60tf	3.60ft	1.00kt	3.60tF
New York	18.00	27.90	....	....	....	2.88G	2.60Go	2.60Go	.48Gs	44.00*
Philadelphia	18.00	27.90	3.60	3.40/3.65	3.50/4.60	2.54	2.94	2.94	.37	26.00
Pittsburgh	18.00	27.90	2.68	2.85	3.15	2.88	2.72o	2.72o	.43	54.00
St. Louis	18.00	27.90	....	....	....	2.63	2.55h	2.55h	.42y	51.21
San Francisco	18.00	28.15	2.40	....	3.40	2.79	4.00aa	....	.43	.....
Seattle	18.00	28.40	3.07mcc	2.93mcc	....	3.45mpcc	2.91kmcc	....	.50mcc	52.00mcr
Toronto	.....	.....	....	....	....	4.45	4.10	....	1.60	85.00

*‡ Delivered. * Note: Red lead in oil 50¢ higher than white lead in oil. *a Red lead square. *v Per ton. *w Price to large paint contractors is $1.25 less. *x Mineral prices change frequently due to pig lead price changes. *b U. S. War Dept. Spec. 3-49A. surfaced. *y 55-gallon container. *z Drums. *aa Approximate cost per 100 lbs. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e 15 lb. *f Per 432 sq. ft. *bb Roofers coating and cement; Price per ton. *cc LCL, truck delivery. *dd 2% cash *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload lot prices; Minneapolis and discount. *ee Asphalt pitch in 100 lb. package. *ff 5-gal. drums. *gg F.o.b. factory. vicinity. *k Per cwt. *l Net used. *m 1% discount for cash. *n F.o.b. city. *o Per *hh Incl. freight. *D Std. Black. *E Ready-mixed. *F Over 80% ferric oxide. 50-lb. roll. *p 6-drum, 50 gal. ea. *q Per 90-lb. roll. *r F.o.b. factory, Chicago. ** Aver. wt. approx. 425 to 550 lbs. drums. *G Freight absorbed to destination not over *s 45% Med. *t Federal tax included, add 5% mun. & prov. tax. *u Per 90-lb. .35 cwt.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER† Neat per ton	Gauging per ton	VERMICULITE† Home Insulation pellets	Plaster aggregate	Concrete AGGREGATE‡ Treated	Untreated	ALUMINUM SHEETS Flat; .102" th 36"x96" & 48"x144" per lb‡	Corr roof .032" th 35"x12' per sht	STAINLESS STEEL SHEET*-TYPE 302g 20 ga 48"x96–120" per cwt‡‡	28 ga 36"x120" per cwtmm	COPPER WATER TUBING-TYPE L 2000 ft lots per ft: ¾"b	¼"c
			per bag of 4 cu ft									
Atlanta	$29.00	$36.00	$1.45e	$1.35e	$1.50e	....	$0.359n	$7.067n	$53.68e	$61.18e	$14.49f	$20.29f
Baltimore	21.50	32.00	0.95	1.15	....	$1.15	0.391	0.427r	56.25	64.25	0.1874	0.2629
Birmingham	36.00	43.00	1.55	1.55	1.75	....	0.414	8.392	55.68	65.68	0.2629	0.3211
Boston	19.90	.....	1.15	1.18	....	1.30	0.44p	36.15ep	55.81dd	61.585ddff	0.1773	0.2495
Chicago	25.20	25.20	1.55	1.60	1.60	....	0.43o	8.892fp	57.55fee	65.55fee	0.1874	0.2629
Cincinnati	21.60*e	21.60*e	1.75	1.75	1.85	1.75	0.400	8.34	57.60	69.30ff	0.1726	0.2430
Cleveland	26.00	40.00	1.25	1.32	1.40	....	0.369aa	7.569	58.25	63.25	20.63f	25.86f
Dallas	29.80	31.80	1.20	1.25	1.30	....	0.379	0.439r	55.00	63.00	0.1449	0.2029
Denver	24.00	24.00	1.40	1.30	....	1.50	0.437	8.89	57.32gg	65.32gg	0.1773	0.2496
Detroit	24.00	24.00	1.32	1.33	1.42	1.42	0.415	8.892	57.80	65.80	17.00fee	20.83f
Kansas City	30.00	35.00	1.20	1.30	1.40	....	0.416	9.94	60.72ee	68.72ee	21.26f	29.83f
Los Angeles	25.00	26.00	1.25ii	1.20ii	1.45ii	1.25ii	0.427	9.79	69.35	87.10	0.2252	0.2828
Minneapolis	31.00	31.00	1.30	1.60	....	1.80	0.425	7.68	58.36	71.01ff	0.1682d	0.2368d
Montreal	28.80	33.20	1.00	1.20	1.35	1.30	0.372	8.25	54.00	.....	0.29	0.350
New Orleans	35.00	37.00	1.50	1.20	1.25	1.25	0.359	0.366aajb	56.68	64.18	0.1449	0.2029
New York	23.00	29.00	1.25	1.20	1.40	1.30	0.43fov	8.50f	58.42	66.42	20.16f	28.30f
Philadelphia	23/25	32.00	1.35	1.35	1.35	1.40	26.50fwz	7.55f	53.23f	60.98f	14.49f	20.29f
Pittsburgh	27 50	31.00	1.30	1.30	1.35	1.30	0.42	9.19	56.81	62.63	0.1923	0.2437
St. Louis	30.00	37.00	1.25	1.50jj	1.60jj	1.50	0.45io	8.89e	56.64kk	75.64kk	16.81fm	23.63fm
San Francisco	24.00	26.00	1.05	1.03	....	1.24	0.416	8.14cc	71.85	....	0.1773	0.2496
Seattle	33.00	36.50	1.45	1.25k	1.65	....	0.369	7.569	64.75ee	72.75ee	0.1449	0.2029
Toronto	32.50	40.00	1.20	1.45	1.45	1.35	0.38	20.55	58.80	92.40	0.3065pp	0.3854pp

† truckiots, delivered * carload ‡ delivered *a fob city *b ½" O.D. *c ⅝" O.D. *d 10M ft & over *e 2-10M ft; 10M ft & up: $0.1925/ft *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled; 2B finish *h 15M lb *i 3003 alloy; 1100 alloy: $0.458/lb *j 1100 & 3003 alloy, mill finish *k per bag of 3 cu ft *l treated has air entraining agent; untreated does not *m 2-10M ft *n fob plant, fr allow *o 5M lb & up *p 100 sq ft quantity *q 2M lb quantity *r per lb *s 30¢ bag *t 36" x 96":- 10.81 lb/sh; 48" x 144":21.7 lb/sh *u 19.33 lb/sh *v in 4M-lb skids; $0.296/lb in 1M-lb cases *w 48" x 144" *x 36" x 96" $13.25/sh *aa 16M lb & up *bb fob mill *cc 26" x 6-12' *dd add $0.75/cwt for boxing *ee 4 tons & up *ff 26 ga *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; $0.4-lb, per sh. *ii 300-bag lots *jj per 100-lb bag *kk mill shipment; add $2 per cwt for immediate del *mm Theoretical wt: 19.7-lb per sh *nn Deliv, warehouse means *oo ¼" O.D. *pp Incl 10% sales tax

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	⅜"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION† loose, per 40-lb bag a	3" batts per M sf	GLASS FIBER INSULATION† loose, per 40-lb bag a	3" batts per M sf	ALUMINUM FOIL 60¢ Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq.ft
Atlanta	$75.00	$65.00	$45.00	$75.00	$75.00	$125.00	$75.00	$1.08	$75.00	$1.45b	$85.00	.....	.....
Baltimore	$49.25f	43.50f	31.30f	53.00f	65.00f	108.50f	69.00f	1.30	66.50	1.60	45.00	$4.00g	$33.50
Birmingham	67.00	56.00	46.75	75.00	73.50	124.00	72.50	1.32	70.00	1.60	80.00	3.39g	.....
Boston	46.50m	41.00m	31.50m	48.00m	64.00m	109.00m	79.00kn	1.45	75.00	1.40	56.00	5.80	54.50
Chicago	67.00	50.00	41.00	57.00	80.00	120.00	80.00	1.70	82.00	....	63/65bb	5.25	....
Cincinnati	46.40w	41.60w	30.80w	45.81w	65.00w	110.00w	65.00w	.....	61.00	1.25	75.00	2.81	50.00w
Cleveland	60.00	60.00	40.00	60.00	70.00	111.00	70.00	1.35/1.50	75.00	2.20	82.00	7.76dj	.....
Dallas	55.00	52.50	40.00	62.50	73.50	122.50	70.00	1.90	65.00	1.35	65.83	4.25	.....
Denver	60.00	52.50	40.00	60.00	72.90	123.00	71.90	....	71.00i	1.30	80.00	11.00r	21.00
Detroit	55.00	48.50	35.75	54.00	55.50	95.00	56.00	....	.....	1.95b	77.25	....	.....
Kansas City	65.00	55.00	40.00	65.00	72.00	120.00	75.00	1.40	80.00	1.40	80.00	15.45dt	25.75
Los Angeles	57.50	50.00	0.31z	57.50	71.87	121.25	80.00	....	83.00	1.35e	64.00	4.20g	.....
Minneapolis	72.00	63.00	0.40z	80.00	70.00	114.00	70.00	1.30	78.00	1.30	78.00	6.50	.....
Montreal	60.00	52.00	36/39	53.00	60.00	.....	62.00	1.00	62.00	1.00	62.00	20.00o	50.00
New Orleans	65.00	50.00	45.00	65.00	65.00	100/115	70.00	1.95	79.00	....	.....	15.66u	.....
New York	50.00	44.50	34.00	51.00	69.00	109.00	70.50	1.55	69.00	1.90b	72.00	5.20	48.80cc
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	....	63/70	....	70/75	5.80/6	34.50/44.50
Pittsburgh	68.00	57.00	42.50	70.00	70.00	108.00	65.00	1.90	72.00	1.90	72.00	4.10	.....
St. Louis	65.00	55.00	40.00	72.00	75.00	120.00	75.00	1.80	85.00	1.30	69.00	5.50	.....
San Francisco	50.00z	43.75	0.33z	54.00k	58.00	94.00	56.00	1.60	66.50	1.55	66.50	4.82	52.50
Seattle	57.50	50.50	40.00	59.00	71.40	120.35	70.20	1.50y	81.00	1.65aa	62.00aa	4.25g	.....
Toronto	61.00	50.00	40.00	64.50	75.00	.....	.....	0.90	47.00	....	51.00	15.25o	39.00

*a for hand packing *b per 30¢ bag *c carloads *d 40¢ kraft paper *f full trailer loads *g 80¢ kraft paper backing *h LCL *i flameproof $75.00 j 133 lin ft; per 100 roll *k plain core; asph core $86/M sq ft *m 10 ton quantities *n distributor's siding *o per Msf roll *p per sf *r per cwt *s per 35¢ bag *t per M sq ft *u honeycomb, 1½-in *w fob city *x per sq. yd. *y 25¢ bag *z 32¢ bag *aa fob warehouses *bb 2' *cc in 250 sf rolls, of 16', 20', or 24' width.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.25	$2.60	$2.95	$2.70	$3.875	$3.00	$3.15d	$1.38	$1.38
Baltimore	3.20d	2.75	3.325t	2.55/2.80Q	3.075t	3.075	3.075t	1.675t	1.675t
Birmingham	3.50	2.60	3.00k	2.42	2.82	3.075k	3.125k	1.40	1.50
Boston	3.35e	2.925k	3.475k	3.40	3.45f	3.23R	3.30d	2.22Y	2.22Y
Chicago	3.625k	3.375e	3.50k	3.225m	3.625y	3.53f	3.44••	2.575k	2.575k
Cincinnati	3.40	3.15	3.275k	2.925/3.175	3.225	3.41N	3.445Z	2.20	2.10
Cleveland	3.45k	3.40	3.40k	3.40	3.40	3.425	3.40d	2.65	2.65
Dallas	3.625	2.875	2.95	2.95b	3.437	3.00	3.185b	1.50	1.50
Denver	3.50	2.975	2.975t	2.83	3.375t	3.00	3.20D	1.925	1.925
Detroit	3.58ee	3.324q	3.475P	3.30zz	3.49vl	3.655H	3.37k	2.55ez	2.55e
Kansas City	3.625	2.85	3.00	3.045	3.325	3.18O	3.225k	2.105	2.13
Los Angeles	3.60	3.00d	3.325b	2.91d	3.75S	3.25	3.44d	2.275k	2.275k
Minneapolis	3.325	2.90	3.07	2.85	3.18Gr	3.29n	3.075k	2.15	2.15
New Orleans	3.175	2.60	2.975b	2.80	2.80	3.10k	3.10s	1.475	1.475
New York	4.15br	3.73bJ	4.075p	3.99J	4.35A	3.66aF	3.978bL	2.592V	2.592V
Philadelphia	3.92i	3.30	3.73iM	3.17/3.92s	3.65C	3.80ss	3.615g	2.025	2.325
Pittsburgh	3.725k	3.275k	3.375k	3.425k	3.575k	3.50	3.50k	2.175k	2.08d
St. Louis	3.625e	3.225k	3.225k	3.225	3.50k	3.60e	3.50E	2.275k	2.275k
San Francisco	3.75e	3.16s	3.35•	2.96e	3.66•	3.35U	3.56K	2.275e	2.275e
Seattle	3.50d	2.76d	3.07d	3.00d	3.25d	3.235X	3.31T	2.35d	2.35d
Montreal*†	2.10	1.90	2.00	1.80	2.12	2.10	2.12	1.30	1.30
Toronto**	2.558	2.392	2.39	2.45	2.496	2.60	2.444	1.40	1.40

* Cost of living bonus now included in basic wage. † Plus 8% fringe benefits ** Incl. 4% vacation fund. *a 8 hr. day. *b 7 hr. day. *c Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. *d Incl. 10¢ H&WF. *e Incl. 10¢ VF. *f Incl. 6% WF. *g Incl. 11½¢ WF. *h $2.05 homes & housing plus 7½¢ WF. *i Incl. 17¢ WF. *j Incl. 10½¢ hr. WF. *k Incl. 7½¢ hr. WF. *l Incl. 4% VF *m Incl. 5¢ hr. WF. *n Incl. 8¢ H&WF, 6% VF, 1% PF. *o Incl. 10¢ PF, 7¢ WF. *p Incl. 3% WF, 3% PF. *q Incl. 10¢ ins; 4% vac. and holiday pay. *r Incl. 4% WF and 20¢ PF. *s Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *t Incl. 7½¢ H&WF. *u Incl. 1½% PF. *v Incl. 10¢ WF. *w Negotiating. *x 5¢ VP. *y Incl. 22½¢ WF. *z Incl. 7½¢ IF, 5¢ H&WF. *A Incl. 15¢ WF, 15¢ PF, 20¢ B.F. *B Incl. 3% WF. *C Incl. 15¢ WF. *D Incl. 10¢ H& WF, 5¢ organ. *E Incl. 6% WF, plus travel pay per day. *F Plus $4 per day Annuity contrib. *G Incl. 3¢ Prom. *H Incl. 7¢ WF, 6% VF. *I Incl. 15¢ H&WF, 5¢ for Advtg. *J Incl. 5% WF, 6 PH. *K Incl. 11¢ WF, 12½¢ VF, 10¢ PF. *L Incl. 3% WF, 3% PF, 2% VF, 1% EF. * M Incl. 7½¢ PF. *N Incl. 1% WF. *O Incl. 10¢ WF, 1% PF. *P Incl. 10¢ hosp. ins.; 5¢ vac. * Q 1 drum, 2 drums $ 3.25/3.40. * R Incl. 12¢ WF and 1¢ apprentice. *S Incl. 12½¢ H and WF. *T Incl. 21¢ H, W & VF. *U Incl. 7½¢ WF, 4% VF. *V Incl. 5% WF, 3% PF. *W Incl. 2% F. *X Incl. 8¢ VF, & 7½¢ H & WF. *Y Incl. 7¢ H & WF. *Z Incl. 9½¢ WF. *aa Incl. 7¢ WF, 15¢ PF. *bb Incl 8¢ WF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Sept. '55	Oct. '55
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day) Remachadores.	av. per hr.	1.37•	1.37•
Struct. Steel Shapes 3"–15" x 12 meters	per metric ton	1564.50	1564.50
Reinf. Steel, Corr. Rods ¼" x 11 meters	per ton	1564.50	1564.50
⅜" x 11 meters	per ton	1564.50	1564.50
½" x 11 meters	per ton	1564.50	1564.50
⅝" x 11 meters	per ton	1564.50	1564.50
¾" x 11 meters	per ton	1564.50	1564.50
1" x 11 meters	per ton	1564.50	1564.50
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	70.00	70.00
Rose Gravel	per tr. load	65.00	65.00
Cement, Std. Port. (Tolteca)	per ton	185.00	185.00
Lumber			
3rd Class Pine	per M ft.	1400.00	1400.00
1st Class Pine	per M ft.	2000.00	2000.00
2nd Class Pine	per M ft.	1800.00	1800.00

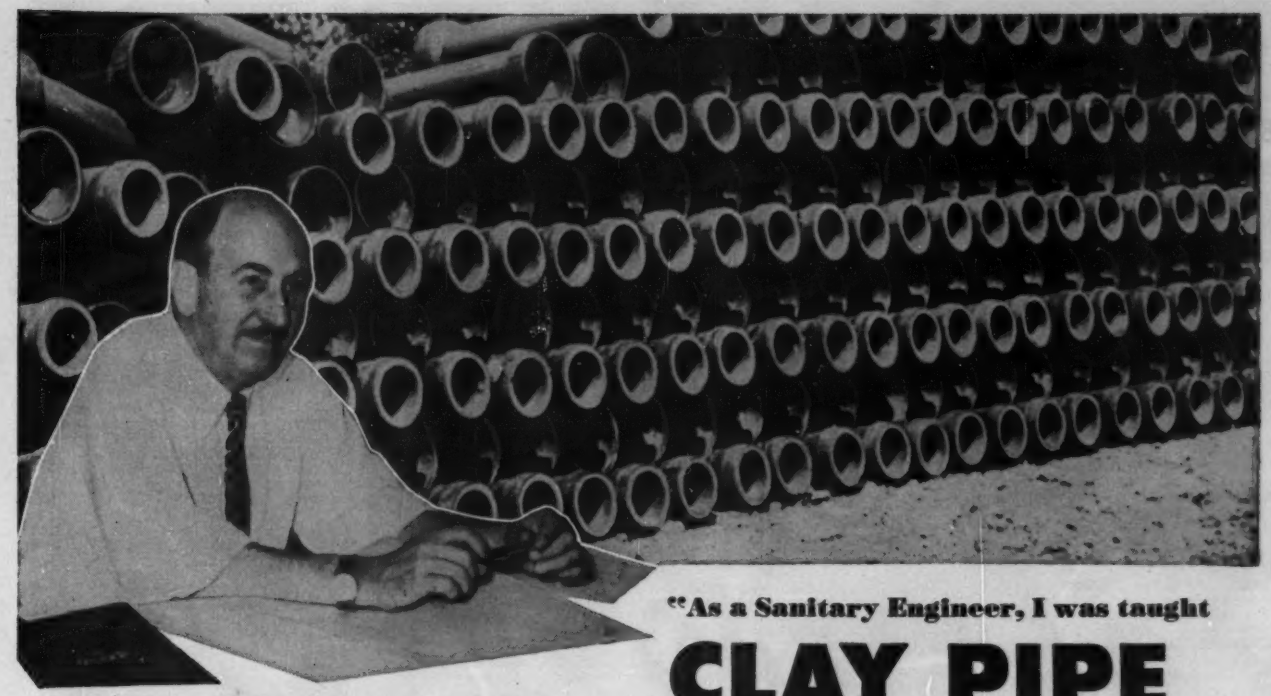
• 1st & 2nd floors. Aver rate 4.38

ENR Skilled Average (Bricklayers, Carpenters Iron workers): $3.286. ENR Common Average $2.094

EQUIPMENT OPERATOR WAGE RATES

	Truck drivers 1½ T	—4 cy Dump	+4 cy	Tractor Operators incl bulldozers 34–49 hp	70–100 hp	100 & over	Tractor scraper 15–16 cy	Power cranes & shovels ½ cy	¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.50pp	.....	.....	$2.425	$2.425	$2.425	$2.425	$2.95	$2.95	$2.425	$2.20	$1.60
Baltimore	1.675u	1.825u	1.925u	2.85/3.00b	2.85/3.00b	2.85/3.00b	2.85/3.00b	3.25/3.40b	3.25/3.40b	2.85/3.00b	2.85/3.00b	2.25
Birmingham	1.50	1.85ff	1.92gg	2.56	2.56	2.56	2.70	2.70	2.70	2.61	2.285	1.625
Boston	1.945c	.....	.....	3.025d	3.025d	3.025d	3.025d	3.40	3.40	3.40	2.555	2.22e
Chicago	2.12fii	.....	.....	2.90ag	3.05ak	3.10gi	2.90u	3.50u	3.50u	3.00u	3.00u	....
Cincinnati	2.10oo	2.20oo	2.30oo	2.925	2.925	2.925	2.925	3.175	3.175	3.175	3.175	3.175
Cleveland	2.42m	2.42m	2.42m	3.15	3.15	3.15	3.15	3.40	3.40	3.15k	3.025	3.025
Dallas	1.50	1.50	1.50	1.50/2.625l	1.50/2.625l	1.50/2.625l	1.50/2.625l	1.50/2.625l	1.60/2.625l	1.60/2.625l	1.50/2.00l	1.50/1.55l
Denver	2.05	2.05	2.15	2.05	2.66	2.66	2.66	2.83	2.83	2.66	2.66	2.275
Detroit	2.35oo	2.35oo	2.35oo	3.30m	3.30m	3.30m	3.30m	3.30m	3.30m	3.30m	3.025m	2.68m
Kansas City	2.065n	2.065o	2.14p	2.25	2.80q	2.80q	2.80r	3.045	3.045	2.66	2.80t	2.19
Los Angeles	2.38u	2.38u	2.41u	2.96m	2.96m	2.96m	3.34m	3.16m	3.16m	3.12m	2.59m	2.485u
Minneapolis	2.15	2.15y	2.30	2.53	2.75q	2.97z	2.75	2.97y	3.23z	2.53	2.42	2.25
New Orleans	1.575	1.575	1.575	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.15	1.575
New York	2.12½aa	2.52bb	2.52bb	3.33cc	3.33cc	3.33cc	3.465cc	4.25cc	4.25cc	3.465cc	3.465cc	2.94cc
Philadelphia	1.90/2.10u	1.90/2.10u	1.90/2.10u	3.17/3.92m	3.17/3.92m	3.17/3.92m	3.17/3.92m	3.17/3.92m	3.17/3.92m	3.17/3.92m	2.99m	2.15m
Pittsburgh	2.275u	2.275u	2.275u	2.95u	3.275u	3.325u	3.325u	3.425u	3.425u	3.325u	3.325u	2.275u
St. Louis	2.275unn	.....	.....	3.225kk	3.225kk	3.225kk	3.225kk	3.225kk	3.225kk	3.225kk	2.675kk	2.2675kk
San Francisco	2.30u	2.30u	2.315u	3.07m	3.07m	3.07m	3.07m	3.40m	3.40m	3.23m	2.68m	2.40m
Seattle	2.60nu	2.60ndd	2.80nee	2.75m	2.95m	2.95m	2.95m	3.30m	3.30m	3.05m	2.75m	2.62m
Montreal ll	1.30	1.30	1.30	1.73	1.73	1.73	1.73	1.99	1.99	1.73	1.80	1.60
Toronto	1.51ii	1.51ii	1.72ii	1.98ii	1.98ii	1.98ii	1.98ii	2.45ii	2.45ii	....	2.13ii	2.13ii

*a Incl 5¢/hr HWF *b lower rates, straight time, other broken *c 2-axle; 10-wheel $2.00; Euclid $2.20 *d intermediate *e bldg constr; highway $2.145 *f less than 2-t *g blade *h scoop, bldg *i scoop, road *j plus $2 pd by employer for hosp. death benefits to family *k bldg constr; steel constr $3.40 *l higher rates are union, other taken from min wage scale approved by County Commissioners Court *m incl 10¢ H&WF *n flatbed *o under 10 cy *p over 10 cy *q over 50 hp *r blade grader *s form and subgrade *t single *u incl 7½¢ HWF *v up to 6 cy *w 6–8 cy *x cat oper *y up to 3½ cy *z 3½ cy & over *aa plus approx $5.30 per wk W&PF *bb incl 3% WF, 2% PF, 11 PH *cc incl 5% WF *dd up to 5 cy *ee 5 cy & over *ff over 1½ T but not incl 3 *gg over 3 but not incl 5 tons *hh excavating *ii incl 4% VP *jj includes 12¢ H, W & PF *kk 7½¢ WF included in base pay *ll Plus 8% fringe benefits *nn 8 cy or less; 8–16 cy $2.875; 16–25 cy $3.125 *oo Plus $2.25/wk WF *pp 2–5 T $1.70.



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206 Connally Bldg., Atlanta 3, Ga.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 15 Massachusetts
STREETS AND ROADS
November 15, 22 Massachusetts

▲† J. R. Cianchette, 120 Main St., Pittsfield, Me. LB $6,380,755, est. $6,000,000. airfield pavements, runway and taxiway lighting, FY-56, Dow Air Force Base, ENG-19-016-56-24, BANGOR, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Oct. 28. CD 10/24.

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
A. V. Taurasi Co., Inc., 139 Jacques St., Somerville, Mass. CA $2,286,663, est. $2,700,000. Amvets Memorial Hy., Fall River. CD 10/6, under LB.

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Berke Moore Co., Inc., 8 Newberry St., Boston, Mass. LB $2,242,260. hy. and bridge at Everett, U-342 (1). Bids Oct. 26. CD 10/17.

▲ CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,
The Savin Constr. Corp., 10 Village St., East Hartford, Conn., LB, $10,797,151, Proj. 306-03, 306-10, Proj. 307-01, 307-03, highway work, Darien, Norwalk and Westport; LB $2,601,056, Proj. 302-01, 30203, highway work, Greenwich. Bids Oct. 24. CD 10/17.

▲ CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,
The Savin Constr. Corp., 10 Village St., East Hartford, Conn., CA, $1,614,901 Section 317, Contract 01, Proj. 317-04, Greenwich-Killingly Expressway Highway work, New Haven. Bids Sept. 19, awarded Oct. 21. CD 9/29, under LB.

BUILDINGS—LB & CA

▲ McLaughlin Constr. Co., c/o Middlesex Homes, Inc., Owner Builds. Separate Contracts. $2,300,000. RESIDENTIAL DEVELOPMENT, "Mid Pines" Rte. 38 off Rte. 128, TEWKSBURY, MASS.

▲ Gilbane Building Co., 90 Calverley St., Providence, R. I., CA Est. $1,000,000. FACTORY, Martin St., CUMBERLAND, R. I. Development Realty Corp., Mr. Allen Travers, Biltmore Hotel, Providence, R. I. Fletcher Thompson, Inc., 211 State St., Bridgeport, Conn., archt. Ansonia Wire & Cable Co., 63 Main St., Ansonia, Conn., lessee.

▲ Turner Constr. Co., 420 Lexington Ave., New York, N. Y. CA, $5,000,000. 500,000 sq. ft. PLANT addn. for producing jet engines, NORTH HAVEN, CONN. Pratt & Whitney Aircraft Div., United Aircraft Corp., 400 Main St., East Hartford, Conn. Bids Oct. 11. CD 9/26.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ N. Y., Rye—OFFICE, etc.—BA After 11/15—Continental Baking Co., 630 Fifth Ave., New York, Zone 20, (selected list bidders) 2 story office, 1 story laboratory, 18 acre tract Theall Rd. and Theodore Fremd Ave. Extended date. CD 10/17.

▲ N. J., Phillipsburg—HOSPITAL—BA 11/29—Bd. Trustees, Warren Hospital, Phillipsburg, (selected list of bidders), hospital. $2,000,000. Extended date. Frederick G. Fost & Assoc., 144 E. 40 St., New York, N. Y., archts. CD 11/1.

▲ N. Y., New York—SCHOOL—BA 11/29—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, general constr. Junior High School 139, Brook Ave., E. 141 St. and E. 142 Sts., Bronx Boro. Total est. $2,840,000. Plans deposit $40. CD 9/28.

▲ Pa., New Bethlehem—SCHOOL—BA 12/5—Red Bank Valley Joint Schools, 1 story, brick, block Junion-Senior High School, $1,500,000. Plans deposit $60, Walter F. Rittenhouse, Vine and Jefferson Sts., Kittaning, archt. CD 9/29/53.

BUILDINGS—SLC

▲ Pa., Phila.—SERVICE—Gulf Oil Corp., 435 Seventh Ave., Pittsburgh, soon lets contract 3 service bldgs. and visbreaking unit. $1,600,000. T. J. Beal, c/o owner, engr. in charge.

▲ Pa., Villanova—LAW SCHOOL—Henry D. Dagit & Sons, archts., 1329 Race St., Phila., soon lets contract Law School for Villanova University, Villanova, Pa. $1,000,000. CD 3/9/54.

HEAVY CONSTRUCTION—LB & CA

▲ NEW YORK—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,
N. Y.—J. Rich Steers, Inc., 17 Battery Place, New York 4, N. Y. LB $2,188,199, est. $2,272,000. New York State Thruway-Hudson Section-Sub. 9B, (Tappan Zee Bridge, H.T. 55-8, Westchester Co.;
N. Y.—Collins Bros., Mechanicville, N. Y. LB $256,241, est. $292,000. Thomson-Fort Edward, Pts. 1 and 2, S.H. 1685-A, 0.53 mi., F.A. RC 55-75, Washington Co.;
N. Y.—Pinebrook Constr. Corp., 210 E. 40 St., New York 16, N. Y. LB $289,711, est. $305,000. Rosendale-Tillson C.R. 113, 0.08 mi., FASS 55-4, Ulster Co.;
N. Y.— "Les" Strong Constr. Co., Whitney Point, N. Y. LB $144,794, est. $165,000. Barge Canal, Lock Nine Connection S.H. 1682 0.16 mi., R.C. 55-74, Schenectady Co. Bids Oct. 27. CD 9/30.

▲ NEW YORK—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y.—D. W. Winkelman Co., Inc., 205 Harrison St., Syracuse, N. Y. LB $3,629,721, est. $4,711,000. N. Y. S. Thruway-Erie Sect., Subdivision E-3B (Dunkirk-Pomfret Town line to Fredonia Roberts Rd.) Bennett Rd., interchange; Roberts Rd. S.H. 857 and 7, Secondary Cross Rds., and streets 3.48 (4.47 Acc. mi.), E.T. 55-11, E.T.C. 55-12, R.C. 55-77, S.T.C. 55-15, S.T. 55-13, Chautauqua Co.; LB $2,781,124, est. $3,565,000. N.Y.S. Thruway-Erie Sect. Subdivision E-1A (Penn. State Line to Barden Rd.) Ripley-Sherman Pt. 1, S.H. 1297 and two secondary cross roads and access roads 5.27 (3.19 acc.) mi., E.T. 55-10, S.T. 55-11, R.C. 55-73, Chautauqua Co.;
N. Y.— C. D. Murray Co., Inc., Eckel Bldg., Syracuse 2, N. Y. LB $94,167, est. $115,000. New York State Thruway Ontario Section-Subdivision 4 County Rd. No. 116 0.6 mi., S.T. 55-12, Cayuga Co.;
N. Y.—Stanley DiStefano & Sons, Watervliet, N. Y. LB $309,129, est. $363,000. South Lansing-Peruville C.R. 107, 5.43 mi., FASS 55-8, Tompkins Co. Bids Oct. 27.;
N. Y.—received no bids Oct. 27, Cross Bronx Expressway Contr. 13C FACBE 0-1 (Highbridge Interchange) 0.13 mi., CBE. RC 55-2, New York Co., est. $20,000; New York State Thruway-Southern Westchester Connection Subdivision 11 Hudson Section-Sub. 9A and Mohawk Section-Sub. 1, T.R.T. 55-1, Westchester, Rockland and Schenectady Counties, est. $11,000. CD 10/3.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

▲ NEW YORK—Bureau Contracts & Accounts, The Gov. Alfred E. Smith Sate Office Bldg., Albany, rescinded contract grade crossing elimination Long Island R.R. with various streets in Hamlet of Baldwin and village of Freeport. Bids will be taken soon on new plans to incl. retaining walls to protect conduits not included in former plans. CD 10/24, under CA.

▲ P. J. Carlin Constr. Co., Thomas Crimmins Contg. Co. and Atlas Tile & Marble Works, Inc., 209 W. 38 St., New York 1, N. Y. CA $1,478,945. (3 bidders) alterations, demolition, excavation and foundations for Kent Avenue Power Plant, New York City Transit System, Contr. P-126, NEW YORK. New York Transit Auth., 370 Jay St., Brooklyn 1, N. Y. CD 9/21, under LB.

▲ Rao Electrical Equipment Co., Inc., & Arc Electrical Constr. Co., Inc., 314 E. 39 St., New York 16, N. Y. CA $2,123,000. (3 bidders) cable equip. and duct constr., Pelham Bay Line, IRT, Contr. P-99, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. CD 9/21, under LB.

▲ Delhan Constr. Co., 306 Ave. Z, Brooklyn 23, N. Y. CA $3,187,700. (4 bidders) lateral sewers at New Hyde Park Stewart Manor and vicinity towns of Hempstead and North Hempstead sewage collection Dist. No. 2-NHP, Contr. 1002-2NHP-1, MINEOLA, N. Y. Nassau Co. Executive, Old County Court House, Mineola, N. Y. Bids Oct. 18. CD 9/20.

▲† Bero Eng. & Constr. Corp., McKinley Bldg., Buffalo, N. Y. CA $1,283,817. (2 bidders) airfield facilities, Package No. 1, grading, POL facilities at Plattsburgh Air Force Base, ENG-30-075-56-92, PLATTSBURGH, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. CD 10/17, under LB.

▲ Cayuga Foundation Corp., 30 Vesey St., New York 7, N. Y. LB $1,479,000. (2 bidders) wid'n. viaduct between Hy. Rte. No. 3 and Prospect Ave., North Bergen, on approach to Lincoln Tunnel, Contr. LT-160-15, NEW JERSEY. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Oct. 25. CD 9/27.

▲ PENNSYLVANIA—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg,
George M. Brewster & Son, Inc., 275 W. Fort Lee Rd., Bogota, N. J. CA $3,562,949. constr. 4.53 mi. (Sect. 37K37) on Northeastern Extension 1, Taylor Borough and city of Scranton, Lackawanna Co. CD 10/13, under LB.

▲ PENNSYLVANIA—State Hy. Dpt., 560 N. Office Bldg., Harrisburg,
Pa.—Dinardo, Inc., 311 Bouquet St., Pittsburgh 13, Pa. LB $1,416,956. constr. 3,783 ft. rein.-con. substructure of west approach to Fort Pitt Bridge, retaining wall and ramps, Pittsburgh, T.R. 22, 30, 837, Allegheny Co.;
Pa.—W. Lawrence Sherbine, Box 66, Wilmore, Pa. LB $204,106. constr. 17,563 ft. crushed aggregate base with bit. surf. 16 ft. wide, 1 rein.-con. arch bridge, Buffington Twp., LR 32027 (R1), Indiana Co.;
Pa.—The Interstate Amiesite Corp., Delaware Trade Bldg., Willmington, Del. LB $238,128. wid'n. 42,-395 ft. left and right existing road with crushed aggregate base bit. surf. 2 ft. width, Rose and Eldred Twps., Brookville Boro, T.R. 36, Jefferson Co.;
Pa.— Ezra Stipp Constr. Co., Love Rd., Scranton 8, Pa. LB $216,587. constr. 6,242 ft. crushed aggregate base with bit. surf. Moosic Boro, Scranton City, T.R. 11, Lackawanna Co.;
Pa.—William M. Gould, 621 Snyder St., Connellsville, Pa. LB $84,049. wid'n. 16,615 ft. existing road with crushed aggregate base and bit. surf. Brownsville, California and Speers Boros, T.R. 88, Washington Co. Bids Oct. 27. CD 10/13.

▲† Alexander & Repass, 2005 Bladensburg Rd. N.E., Wash., D. C. LB, $1,298,000 (16 bidders), Third High Reservoir, North, CIVENG-49-080-56-2, WASH., D. C. U. S. Eng., First and Douglas Sts. N.W., Wash. 23, D. C. Bids Oct. 27. CD 9/15.

▲† D. M. Fontana Constr. Co., 112 A St., Wilmington, Del., CA, $1,192,078, 100-unit air force housing, New Castle Air Force Base, ENG-07-604-56-9, NEW CASTLE, DEL. Procurement Office, New Castle County Airport Wilmington, Del. Bids Oct. 19. CD 10/26, under LB.

BUILDINGS—LB & CA

▲ Stewart M. Muller, Inc., 4 S. Riverside Ave., Croton, N. Y. CA $1,530,940. general contract HIGH SCHOOL, Roaring Brook Rd. near Saw Mill River Parkway, CHAPPAQUA, N. Y. Bd. Educ., Chappaqua, N. Y. Perkins & Will, 171 E. Post Rd., White Plains, N. Y., archts. Bids Sept. 7.

▲ Gaylore At Dix Hills, c/o Herman H. York, archt., 90-04 161 St., Jamaica, N. Y. Owner Builds. $4,000,-000. 130 HOUSES on tract bounded by Deer Park Ave. and Vanderbilt Parkway, HUNTINGTON, N. Y.

▲ Meadowlark Estates, c/o Alwin Cassens Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner

(Continued on page 72)

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The Hunt Company
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Detroit 21, Michigan

Lyle Signs, Inc.
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Minneapolis 14, Minnesota

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National Safety Engineers, Inc.
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Birmingham, Alabama

Standard Sign & Signal Co.
470 Main Street
Clinton, Massachusetts

Traffic & Street Sign Company
80 Foundry Street
Newark, New Jersey

U. S. Standard Sign Company
P. O. Box 39 Station C
Toledo, Ohio

(Continued from page 70)

Builds. $1,800,000. 130 HOUSES on tract on Larkfield Rd. north of Jericho Turnpike, HUNTINGTON, N. Y.

▲ **Sweet Hollow Homes,** c/o Edwin S. Voorhis, archt., 288 Sunrise Hy., Rockville Center, N. Y. Owner Builds. $1,900,000. 70 HOUSES on tract near West Neck Rd., north of Route 25A, HUNTINGTON, N. Y.

▲ **Whitman Village,** c/o Maxfield Blaufeux, archt., 44 Court St., Brooklyn 2, N. Y. Owner Builds. $7,500,000. 427 HOUSES on tract on block east of Rte. 110 north of Northern State Parkway, HUNTINGTON, N. Y.

▲ **Joseph Sager,** 71 Monmouth Dr., Deal, N. J. Owner Builds. Est. $1,970,000. 12 and 18 story APARTMENT, 315-321 E. 72 St., and 310-318 E. 73 St., NEW YORK, N. Y. CD 9/1.

▲ **W. E. D. Holding Corp.,** 2140 Williamsbridge Rd., New York 21, N. Y. Owner Builds. $1,100,000. 6 story APARTMENT, Lurtig Ave. betwen Esplanade and Pelham Parkway South, NEW YORK, N. Y. CD 7/11.

Bakelite Co., River Rd., Bound Brook, N. J., Separate Contracts, $3,000,000. 4 story RESEARCH LABORATORY 16-acre tract, off New Market Rd., BOUND BROOK, N. J. CD 7/6.

▲ **Woodstock Estates,** c/o Erwin Gerber & A. Pancani, Jr., archts., 1180 Raymond Blvd., Newark, N. J., Owner Builds, $2,000,000. 109 HOUSES on tract on Valley Rd., PREAKNESS N. J.

▲ **L. D. Building Co.** Latrobe, Pa. CA $1,794,000. ADMINISTRATION BLDG. at Pikeside at Harrisburg East Interchange, Highspire, Dauphin Co., PENNSYLVANIA. Pennsylvania Turnpike Comn., North Office Bldg. Harrisburg, Pa. CD 9/22, under LB.

▲ **Rea Constr. Co.,** 27 Woodlawn Ave., Pittsburgh, Pa. CA Est. $2,500,000. 2 and 3 story, 100x600 ft., brick, block, steel South Catholic High SCHOOL, Mt. Lebanon, PITTSBURGH, PA. Catholic Diocese of Pittsburgh, 125 N. Craig St., Pittsburgh, Pa. Bids Oct. 21. CD 10/21.

▲ **Fox Built Homes, Inc.,** 804 Oak Lane Ave., Phila., Pa. Separate Contracts. $4,720,000. RESIDENTIAL DEVELOPMENT, Butler Pike, PLYMOUTH MEETING, PA. Harold Krasnoff, 415 Church Lane, Elkins Park, Pa., archt.

▲ **Raymond L. Corper,** Flourtown, Pa. Separate Contracts. $1,587,000. RESIDENTIAL DEVELOPMENT, Tennis Ave., SPRING HOUSE, PA. Samuel Paul, 89-51 164 St., Jamaica, N. Y., archt.

▲ **Philip Vizzini & Son,** 818 N. Franklintown Rd., Baltimore 16, Md. LB $1,159,000, est. $1,500,000. Gwynns Falls Parkway Elementary SCHOOL BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2 Md. Bids Oct. 19. CD 10/5.

▲ **Gordy & Son, Inc.,** New Castle, Del., Separate Contracts, $1,400,000. RESIDENTIAL DEVELOPMENT, Llangollen Estates, NEW CASTLE, DEL.

▲ **E. I. duPont de Nemours & Co., Inc.,** Louviers Bldg., Wilmington, Del., Own Forces, $4,000,000. nylon mfg. PLANT addn., SEAFORD, DEL. C. J. Lawrence, c/o owner's constr. div., engr. CD 8/15/52.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 22 Florida November 16 Louisiana, Virginia November 18 Kentucky

STREETS AND ROADS

November 16 Louisiana, Virginia November 18 Kentucky November 21 Louisiana

▲ **Ala., Huntsville**—BA 11/22—City, City Hall, city water sys., incl. Contr. 1, distribution piping, valves, power hydrants; Contract 2, foundations for steel storage reservoir; Contract 3, furnishing, erecting storage reservoir. Total est. $3,000,000. J. W. Goodwin Engineers, Inc., 2111 7 Ave. S., Birmingham, engr. CD 5/4.

BUILDINGS—BA

▲ **Ky., Lexington**—ADMISSION and TREATMENT—BA 11/19—State Div. Purchases, Frankfort, admission and treatment bldg., Eastern State Hospital, $1,600,000. Plans deposit $50, refundable. Thos. J. Nolan & Sons, Kentucky Home Life Bldg., Louisville, archts. CD 6/8.

▲ **La., Baton Rouge**—LIBRARY—BA 12/6—State Bldg. Auth., State Capitol, Baton Rouge, 187,350 sq. ft. 192x324 ft. library Louisiana State University, $3,500,000. Plans deposit $100. Bodman, Murrell & Smith, 1175 Nicholson Dr., archts. CD 8/6/54.

HEAVY CONSTRUCTION—LB & CA

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

La.—T. L. James & Co., Inc., Ruston, La. LB $2,954,751. (2 bidders) c. conc. 5.787 mi. New Orleans-Little Woods Hy., State Rte. 2236, S.P. 419-01-01, Orleans Parish; LB $531,296. (2 bidders). grav. or soil cement base course 6.907 mi. Oak Grove-Lake Providence Hy., State Rte. 2, S.P. 37-04-08, FA Secondary Proj. S 170 (2), East Carroll Parish.

La.—Flenniken Constr. Co., 3820 Florence Ave., Shreveport, La. LB $475,411. c. conc. 5.01 mi. Azucena-Goldman Hy., State Rte. 3, S.P. 20-02-03, FAP F 404 (6), Tensas Parish. Bids Oct. 26. CD 9/22 and 10/5.

BUILDINGS—LB & CA

▲ **Ralph M. Parsons Co.,** 617 S. Olive St., Los Angeles, Calif., CA, design and construct, 35,000 bbl. per day ultraforming unit, 7,600 bbl. per day naptha desulphurization unit and 15,000 bbl. per day gas-091 desulphurization unit at OIL REFINERY, HORNSBYVILLE, VA. American Oil Co., 555 Fifth Ave., New York 17, N. Y. CD 8/26.

▲ **Jordan Co.,** Box 1197, Columbus, Ga., LB, $1,467,000. Minton Elementary SCHOOL, Sylvester Elementary and High SCHOOL (colored) Sylvester Elementary SCHOOL (white) New Hope Elementary SCHOOL, Anderson City Elementary SCHOOL, Red Rock Elementary SCHOOL, Sumner Elementary SCHOOL, Sylvester High SCHOOL and Bridgeboro Elementary SCHOOL in Worth Co., SYLVESTER, GA. State School Bldg. Auth., Kemper Bldg., 41 Exchange Pl. S. E., Atlanta, Ga. Bids Oct. 27. CD 10/4.

▲ **Paul Smith Constr. Co.,** 310 N. Rome Ave., Tampa, Fla., LB $4,110,500, est $3,980,691. Tampa Municipal HOSPITAL addns., alterations, Davis Islands, TAMPA, FLA. City, City Hall, Tampa, Fla. Bids Oct. 27. CD 9/21.

▲ **Daniel Constr. Co.,** 822 7 Ave. S., Birmingham, Ala., CA, $3,500,000. papermaker felts mfg. PLANT, ALICEVILLE, ALA. F. C. Huyck & Sons, Third Ave., Rensselaer, N. Y. Awarded Oct. 28. CD 10/20.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ind., Indianapolis**—BA 11/21—Indianapolis Sanitary Dist., 421 N. Penn St., constr. Adler-McCarthy Relief Interceptor Sewer. $2,850,000. Moore & Heger, 810 N. New Jersey St., consult. engrs. CD 8/4/54.

▲† **Illinois**—SPECIAL AAA SITES—BA 12/2—U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill., Special AAA and related work, Sites C-44, Dual and C-43H, Cook County, Serial No. ENG-11-032-56-16. Extended date. CD 10/20.

BUILDINGS—BA

▲ **Mich., Ann Arbor** — STUDENTS ACTIVITIES — BA 11/16—University of Michigan, W. K. Pierpont, vice pres. Bd. Regents, Service Bldg., Ann Arbor, students activities bldg. $1,500,000. Plans deposit $50, refundable. Swanson Associates, East Long Lake Rd., Bloomfield Hills, archts. CD 5/6.

▲ **Mich., Milford** — SCHOOL — BA About 1/10 — Bd. Educ., Milford Twp., Harold Hansen, supt. Schools, Huron Valley District High School. $1,250,000. Louis C. Kingscott & Assoc., Inc., 511 Monroe St., Kalamazoo, archt. CD 4/28.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus,

O.—Codell Constr. Co., 125 S. Main St., Winchester, Ky. LB $2,405,863, est. $2,647,500. (13 bidders) Type T-71 and structures 8.024 mi. USR 50 (4.01-11.91) villa village of Albany, Athens Co.;

O.—V. N. Holderman & Sons, Inc., 890 Oakland Park Ave., Columbus, O. LB $1,528,931, est. $1,764,000. (7 bidders) Type T-71 and structures 5.371 mi. USR 23-0.00 19.14, Pickaway and Ross Counties;

O.—N. A. G. Sunday & Sons, Antwerp, O. LB $105,230, est. $125,100. (7 bidders) Type T-35 on B-118 and structures 0.378 mi., CR No. 84 S-396 (2), Allen Co.;

O.—The Horvitz Co., 4375 E. 146 St., Cleveland, O. LB $526,496, est. $529,500. (2 bidders) Type T-71 4.021 mi. SR 2-(0.00-3.97) cities of Eastlake Wickliffe and Willoughby, village of Willowick, Lake Co.;

O.—Leo H. Hopple, 181 Wentz St., Tiffin, O. LB LB $140,808, est. $162,800. (3 bidders) Type T-35 on B-119 and structures SR 590-(7.90) (9.03), (11.44) 13.28), village of Lindsay, Ottawa and Sandusky Counties;

O.—The Twin Constr. Co., R. F. D. No. 3, Chillicothe, O. LB $77,328, est. $91,300. (5 bidders) Part 2 T-35 on B-119 and structures 0.255 mi., Part 1 pipe culvert S.R. 729-0.18, 13.28 village of Sabina, Clinton Co. Bids Oct. 25. CD 10/13.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis,

Arcole-Midwest Co., 3225 Main St., Evanston, Ill., CA, $2,874,388. Contract C-1A, grading, drainage, structures, paving roadway, lighting 0.6 mi. Constr. Sect. C-1A, Indiana East-West Toll Road, Lake Co. Bids Oct. 11, awarded Oct. 26. CD 10/25, under LB.

▲ **Sanitary Dist. of Chicago,** 910 S. Michigan St., Chicago 5, Ill., rejected bids, Contract No. 3, Howard St. Intercepting Sewers, Morton Grove and Skokie, CHICAGO, ILL. LB $1,796,300. New bids Nov. 3. CD 10/10, under LB.

BUILDINGS—LB & CA

▲ **Penker Constr. Co.,** 1030 Summer St., Cincinnati, O. LB $1,030,950. Washington Park SCHOOL, CINCINNATI, O. Bd. Educ., 608 E. McMillan St., Cincinnati, O. Bids Oct. 27. CD 9/30.

▲ **Robert W. Setterlin & Sons Co.,** 2000 Kenny Rd., Columbus, O. CA Est. $1,700,000. general contract, 6 story 105x111 ft. OFFICE, Gay and Front Sts., COLUMBUS, O. Beacon Mutual Indemnity Co., 78 E. Chestnut St., Columbus, O. CD 10/19/54.

▲ **Howe Constr. Co.,** 215 Munroe Falls, Cuyahoga Falls, O. Own Forces. $2,141,000. Johnny Appleseed Village SHOPPING CENTER, Lexington Ave. Rd., MANSFIELD, O. Awarded Oct. 18.

▲ **Serafine Builders, Inc.,** 113 N. School St., Mount Prospect, Ill. Own Forces. $9,500,000. 460 HOMES, water, sewers, paving, MOUNT PROSPECT, ILL. James Viger, 1000 Northwest Hy., Mount Prospect, Ill., archt.

▲ **E. A. Herzog Constr. Co.,** 1032 Lee St., Des Plaines, Ill. Own Forces. $22,000,000. 1,500 HOMES, sewers and water, WHEELING, ILL. CD 1/24.

▲ **Klug & Smith Co.,** 4425 W. Witchell St., Milwaukee, Wis., CA, $7,000,000, design and construct cement PLANT, incl. 12 silos, 110 ft. high, 4 silos, 90 ft. high, dock, spur tracks and office bldg., MILWAUKEE, WIS. Marquette Cement Mfg. Co., 20 N. Wacker Dr., Chicago, Ill. CD 8/16/45.

▲ **Steinle-Wolfe, Inc.,** Fremont, O. CA Est. $2,000,000. Northwood Apartments Group II north Campus University of Michigan, ANN ARBOR, MICH. University of Michigan, Bd. Regents, W. K. Pierpont, vice pres., Plant Service Bldg., Ann Arbor, Mich. Bids Sept. 20. CD 9/16.

▲ **Bryant & Detwiler Co.,** 2110 Penobscot Bldg., Detroit, Mich. CA Est. $7,000,000. foundations, piling, excav., etc. for GENERAL OFFICE BLDG., Southfield and Rotunda Sts., DEARBORN, MICH. Ford Motor Co., 3000 Schaefer St., Dearborn, Mich. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., archt.

▲ **A. W. Kutsche & Co.,** 6275 Schaefer St., Dearborn, Mich. CA $2,208,238. first unit, Amelia Earhart HIGH SCHOOL, Seven Mile Rd. between Hoover and Bradford Sts., DETROIT, MICH. City, Bd. Educ., 1354 Broadway, Detroit, Mich. Bids Oct. 19. CD 9/28.

▲ **Slavik Brothers,** 20063 James Couzens Hy., Detroit, Mich. CA Est. $1,600,000. 115 HOUSES in Outer Drive Rouge Park area, DETROIT, MICH. Cox Realty Co., 20069 James Couzens Hy., Detroit, Mich.

▲ **Steinle-Wolfe, Inc.,** Fremont, O. CA $1,800,000 (9 bidders) first unit Henry Ford High SCHOOL, DETROIT, MICH. City, Bd. Educ., 1354 Broadway, Detroit, Mich. Bids Oct. 5. CD 9/15.

▲ **James A. Welch,** 1011 S. Washington St., Royal Oak, Mich. Owner Builds. $25,000,000. 1,800 brick HOMES, FLINT, MICH. CD 10/20.

▲ **Cunningham-Limp Co.,** 3087 W. Grand Blvd., Detroit, Mich. CA Est. $4,000,000. design and construct 300,000 sq. ft. PLANT addn., WAYNE, MICH. Lincoln-Mercury Div., Ford Motor Co., 6200 W. Warren Ave., Detroit 32, Mich. CD 8/18.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 15 Iowa November 18 North Dakota

STREETS AND ROADS

November 15 Iowa November 18 Minnesota, North Dakota

▲ **TEXAS**—BA 11/22—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,

Dallas Co.—Cont. D-FW 26 grading, drainage 4.795 mi. from 0.36 mi. west of Duncan-Perry Rd. to Meyers Rd. Plans deposit $25. Turnpike Engineers, 205 W. Main St., Arlington, engrs. CD 2/25.

▲ **TEXAS**—BA 11/22—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,

Tarrant Co.—Contr. D-FW 30, continuous rolled beam and plate girder bridges, FM 157 Interchange (3 bridges), Watson School Rd. Interchange (2 bridges) at Johnson Creek. Plans deposit $15. Turnpike Engineers, 205 W. Main St., Arlington, engrs. CD 2/25.

▲ **TEXAS**—BA 11/23—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,

Dallas Co.—Contr. D-FW 31, continuous rolled beam bridges, at A T & P R.R. spur near Grand Prairie, Gifford-Hill RR spur and Mountain Creek.

Contr. D-FW 32, continuous rolled beam and plate girder bridges at Loop 12 and T. & P. R.R., Loop 12 Interchange, Chalk Hill Rd. and T. & P. R.R. spur near Loop 12. Plans deposit $15 each. Turnpike Engineers, 205 W. Main St., Arlington, engrs. CD 2/25.

▲† **Texas**—BA 11/30—U. S. Eng., 100 W. Vickery Blvd., Fort Worth, constr Turtle Creek Pressure Sewer, Part V, Dallas Floodway, Trinity River, CIVENG-41-443-56-9. CD 10/20.

▲† **Mont., Glasgow**—ROADS, etc.—BA 12/1—U. S. Eng., City-County Airport, Walla Walla, Wash., Phase II, roads, curbs, gutters, utilities, Glasgow Air Force Base, ENG-45-164-56-15. Plans deposit $100. Myron E. Page Jr., City-County Airport, Walla Walla, Wash., engrs. CD 2/14.

▲† **Texas**—BA 12/1—U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Coombs Creek Diversion Facilities, Dallas Floodway, Trinity River, CIVENG-41-443-56-12. CD 8/13/53.

▲† **Kansas**—BA On Or About 12/8—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., excav. spillway and constr. embankment, Stage III, Tuttle Creek Dam and Reservoir, Riley Co., CIVENG-23-028-54-49. Total est. $7,500,000. CD 9/12.

BUILDINGS—BA

▲ **Kan., Manhattan**—APARTMENT—BA 11/18—State, Bd. Admin., State House, Topeka, eight two story L-shaped apartment bldgs. northwest of campus, Kansas State College, $1,143,000. CD 8/11.

▲ **Minn., St. Peter**—SCHOOL—BA 1/21—Bd. Educ., E. C. Trimbo, clk., 2 story, bsmnt., Junior-Senior High School, $1,250,000. Swanson, Matson & Wegleitner, 500 Sexton Bldg., Minneapolis, archts. CD 10/28/53.

HEAVY CONSTRUCTION—LB & CA

▲† **Peter Kiewit Sons Co.,** 1024 Omaha Natl. Bank Bldg., Omaha, Neb., LB $1,645,466, Schedule 1, roads and utilities, Minot Air Force Base, Inv. 25-066-56-17. MINOT, N. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 26. CD 10/5;

Chicago Bridge & Iron Co., 332 S. Michigan St., Chicago, Ill., LB $87,025, Schedule 2 roads and utilities, Minot Air Force Base (Minot, N. D.)

BUILDINGS—LB & CA

▲ **Thomas Constr. Co.**, Schneider Bldg., St. Joseph, Mo., CA, $1,307,005. LINDEN HALL, Iowa State College, AMES, IOWA. State Bd. Educ., State Office Bldg., Des Moines, Iowa. Bids Sept. 2. CD 9/28, under LB.

▲ **M. C. Andrews, Jr. & Assocs.**, Grand Prairie, Tex. Own Forces. $1,850,000. Unit 2, SHOPPING CENTER UNIT, ARLINGTON, TEX. CD 10/14.

▲ **Foster Wheeler Co.**, 165 Broadway, New York, N. Y., CA, Total est. $5,000,000. delayed coking PLANT, LOMA, COLO. American Gilsonite Co. (Barber Oil Corp. and Standard Oil of California) 134 W. 3 St. S., Salt Lake City, Utah, CD 8/22;
Kaiser Engineers, 1924 Broadway, Oakland 12, Calif., CA, calcining plant, utilities and other facilities, (Loma, Colo.).

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 23, 25 California

▲† **Wash., Moses Lake**—RUNWAY, etc.—BA 12/14—U. S. Eng., City-County Airport, Walla Walla, runway and taxiway pavement strengthening, Larson Air Force Base, ENG-45-164-56-16. Plans deposit $10. CD 12/4/52.

▲ **Washington**—Bids Early 1956—Grant County Public Utility District No. 2, P.O. Box 878, Ephrata, 8,800 ft. long, 100 ft. high concrete, earthfill dam with initial installation of eight 79,000 kv generating units on Columbia River. Arrangements for viewing site and pre-bidding information may be obtained from owner or engineers. Total est. $325,000,000. Harza Eng. Co., 400 W. Madison St., Chicago 6, Ill., engr. CD 11/4/54.

BUILDINGS—BA

▲ **Wash., Yakima**—SCHOOL—BA 11/17—School District No. 7, Yakima, 188,000 sq. ft., rein.-con. Junior-Senior High School. $1,250,000. Plans deposit $50. J. W. Maloney & J. H. Whitney, Larson Bldg., archts. Extended date. CD 10/19.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA** — San Francisco Bay Toll Crossing, 2054 University Ave., Berkeley,
Judson-Pacific-Murphy & Peter Kiewit Sons' Co., 4300 East Shore Hy., Emeryville, Calif., CA, $2,919,019 San Quentin approach to Richmond-San Rafael Bridge, Marin Co. Bids Oct. 25, awarded Oct. 28. CD 10/28, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
Guy F. Atkinson Co., 10 W. Orange Ave., South San Francisco, Calif., LB, $2,039,702 (4 bidders) grading 1.6 mi. Bayshore Freeway, 2 bridges, San Mateo Co. Bids Oct. 26. CD 10/18.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
Guy F. Atkinson Co., Box 253, Long Beach, Calif., CA, $2,863,722. grading, paving 6 bridges, 2 pedestrian undercrossings, 2.6 mi. between College Ave. and Camp Rd., San Diego Co. Bids Oct. 14, awarded Oct. 25. CD 10/18, under LB.

BUILDINGS—LB & CA

▲ **Branden Constr., Inc.**, Box 375, Hayward, Calif., Owner Builds, $1,140,000. 152 HOME subdivision, HAYWARD, CALIF.

▲ **Gordon H. Ball**, 300 Camille Ave., Danville, Calif., LB, $3,692,000 (5 bidders) concrete runways, etc., drainage sys., lighting, power at Lockheed Air Force PLANT No. 42 PALMDALE, CALIF. Lockheed Aircraft Corp., Box 551, Burbank, Calif. Bids Oct. 26. CD 10/5.

CANADA

HEAVY CONSTRUCTION—BA

▲ **Quebec**—BA 11/22—St. Lawrence Seaway Auth., 1225 N. 2 Temporary Bldg., Ottawa, Ont., excavation of channel at Station 752-900 and constr. dyke at Station 710-900 in Lachine Section of St. Lawrence Seaway Proj. near Montreal. Plans deposit $100. A. Gordon Murphy, 685 Cathcart St., Montreal, owners ch. engr. CD 9/9/54.

BUILDINGS—BA

▲ **Ont., London**—WAREHOUSE, etc.—BA 11/22—Defense Constr. Ltd., 56 Lyon St., Ottawa, 2 warehouses, 1 administration bldg., gatehouse and utilities, etc. Army Camp. $1,000,000. Plans deposit $100. CD 3/18/53.

BUILDINGS—SLC

▲ **Que., Montreal**—OFFICE—Greenspoon, Freedlander & Dunne, archts., 4151 Sherbrooke St. W., soon lets contract superstructure 12 story, 100x110 ft. office, Peel St., for Fremont Investments Ltd., c/o architeit. Total est. $1,250,000. Pierre M. D'Allemagne, 3180 Van Horne Ave., engr. CD 5/6.

HEAVY CONSTRUCTION—LB & CA

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,
Ben Glinter Constr. Co. Ltd., Prince George, B. C., LB, $1,111,023, reconstr. Trans-Canada Hy., Cache Creek-Lemonade Flats Sect. Proj. 648. Bids Oct. 20.

▲ **Emil Anderson Constr. Co. Ltd.**, Florence Lake Rd., Victoria, B.C., CA, $1,278,985, railroad roadbed grading mile 82.0 to mile 109, Prince George north, BRITISH COLUMBIA. Pacific Great Eastern Ry. Co., B. E. Valde, ch. engr., Squamish, B.C. Bids Oct. 24. CD 10/17.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto,
Hamilton Bridge Div., Bridge & Tank Co. of Canada Ltd., 231 Bay St. N., Hamilton, Ont., LB, $1,598,700 (2 bidders) Contract 55-202, structural steel for superstructure, Part F of Burlington High-Level Bridge, Burlington. Bids Oct. 26. CD 10/7.

BUILDINGS—LB & CA

▲ **McGraw Constr. Co.**, Middletown, O., U.S.A., CA $4,000,000. PLANT addns., alterations, AMHERSTBURG, ONT. Brunner Mond Canada Ltd., Amherstburg, Ont. Awarded Oct. 29. CD 7/13.

▲ **Ompeau Constr. Ltd.**, 525 Bank St., Ottawa, Ont. Owner Builds. $1,000,000. 9 story APARTMENT Stewart St. and King Edward Ave., OTTAWA, ONT. CD 1/17.

▲ **Angus Robertson Ltd.**, 57 Bloor St. W., Toronto, Ont., CA Est. $3,000,000. 3 story, 80x100 ft. ENAMEL MFG. BLDG. exten., 2 story 60x100 ft. LACQUER PLANT, plus two other buildings, 60x100 ft. MACHINE SHOP exten. TORONTO, ONT. Canadian Industries Ltd., Paint & Varnish Div., P.O. Box 10, Montreal, Que. CD 5/17.

▲ **Simard & Freree Co. Ltd.**, 3033 Cote St. Michel Rd., Montreal, Que., CA Est. Over $40,000,000. HOUSING Program, La Salle Blvd., MONTREAL, QUE. Metropolitan Development, Inc., 3031 Cote St. Michel Rd., Montreal, Que. Wilfrid E. Lauriault, 863 Convent St., Montreal, Que., town planning consultant.

▲ **Charles Dancereau, Ltd.**, 2545 Jacques Hertel St., Montreal, Que., CA, $2,800,000, general contract 4 and 5 story, bsmnt., H-shaped, rein.-con., stone, brick "Cardinal Leger" normal SCHOOL, MONTREAL, QUE. Les Rev. Soeurs Ste. Anne, 1950 Provost St., Lachine, Que. Bids Oct. 2, awarded Oct. 21. CD 10/25, under LB.

▲ **Canadian Chemical & Cellulose Co. Ltd.**, 2035 Guy St., Montreal, Que., CA $2,000,000, design and construct textile mfg PLANT, ST. JOHN'S, QUE. R. M. Sanford, c/o owner, staff engr.

ALASKA

HEAVY CONSTRUCTION—BA

▲† **Alaska**—JET FUEL, GASOLINE SYS—BA 11/23—U. S. Eng., Anchorage, underground jet-fuel and aviation gasoline sys., Elmendorf Air Force Base. Inv. 56-9. $1,000,000. Extended date. CD 10/27.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **Oceanic Constr. Co.**, 4538 E. Firestone Blvd., Southgate, Calif., U.S.A. CA $5,237,680, Proj. 17, approx. 72 kilometers grading, drainage, select borrow base, vicinity of Malacatancito, Inter-American Hy. Proj. GUATEMALA. Guatemalan Govt. Hy. Auth., Guatemala City, Guatemala. Bids Sept. 10. CD 9/16, under LB;
Thompson Cornwall, Inc., Chrysler Bldg., 405 Lexington Ave., New York, N. Y., U.S.A. CA $2,559,261, Proj. 16, approx. 30 kilometers, grading, drainage, select borrow base, Selegua Canyon Area. Inter-American Hy. Proj.; CA $3,118,187, Proj. 18, approx. 60 kilometers, grading, drainage, crushed gravel or stone base course, Patzicia to Santa Apolonia, Inter-American Hy. Proj. (Guatemala).

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

▲ Bids will be taken on the following projects under International competitive bidding of NATO.

FRANCE

Ministere de l' Industrie et du Commerce, Service Special des Depots d'Hydrocarbures, 85 Boulevard du Montparnasse, Paris.
(1) install 125 kilometers 8 in. pipe on Langres-Belfort pipe line. $2,771,430. Bids will be closed on February 22;
(2) approx. 52 kilometers 10 in. pipe for Cambrai-Anvers pipe line. $800,000. Bids will be closed on February 18.
(3) approx. 230 kilometers 12 in. pipe on LeHavre-Cambrai pipe lines, est. $3,430,000. Bids will be closed on January 25. For information on bidding NATO projects see 6/25 Construction Daily. CD 9/23.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Colo., Denver**—Bd. Water Comrs., City and County Bldg., 23 mi. tunnel, known as Blue River Tunnel, under the Continental Divide. Tipton & Calmback Inc., 600 Insurance Bldg., consult. engr. and archt. CD 8/12.

▲ **Neb., Lincoln**—City, City Hall, expansion water treatment and filtration plant at Ashland, $1,258,000, Fulton & Cramer, 922 Trust Bldg., consult. engrs.; water well field expansion $800,000, Harold Hoskins & Assocs., 1630 "Q" St., consult. engrs. CD 5/12/53.

▲ **Okla., Oklahoma City**—City, City Hall, bond election Nov. 22, water distr., water plant extens., $9,000,000; Chickasaw Creek dam and water supply imprvs., $4,976,000. W. W. Baker, city engr.

▲ **Tex., Austin**—Travis County Water Control & Imprvt. Dist. No. 1, c/o Marvin Turner Engineers, 305 W. 11 St., voted $1,500,000 bonds Oct. 22, water line exten., imprvs.

SEWERS, WASTE DISPOSAL

▲ **N. Y., Mineola**—County Executive, Nassau Co., Old County Court House, bond issue authorized on Oct. 17, sewer facilities in Sewage Collection Dist. No. 2,-Elm, $3,315,000; sewer facilities in Sewage Collection Dist. NO2-1PO, $4,414,000. CD 6/13.

▲ **O., Cincinnati**—City, City Hall, Muddy Creek Sewage Disposal Plant, River Rd., near Huey Ave. $3,000,000. CD 11/5/54.

▲ **Okla., Oklahoma City**—City, City Hall, bond election Nov. 22, sanitary sewer extens., $3,000,000; storm sewer extens., $2,900,000. W. W. Baker, city engr.

BRIDGES

▲ **Okla., Oklahoma City**—City, City Hall, bond election Nov. 22, river bridges, $1,095,000. W. W. Baker, city engr.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., level crossing elimination at Dundas St. W. and Royal York Rd., incl. bridge on Dundas St. over railway right-of-way and Royal York Rd., and constr. subway under right-of-way on Royal York Rd. $4,225,000. M. M. Dillon & Co. Ltd., 69 Eglinton Ave. E., consult. engrs. CD 5/31.

STREETS AND ROADS

▲ **Okla., Oklahoma City**—City, City Hall, bond election Nov. 22, arterial traffic ways. $4,105,000. W. W. Baker, city engr. CD 7/27.

Tex., Galveston—Galveston Co., Court House, $1,525,000 bond election Dec. 3, road imprvs. to Cedar Dr. in area of LaMarque. $275,000. CD 8/23/50, under Tex., LaMarque.

▲ **Tex., Galveston**—Galveston Co., Court House, bond election Dec. 3, asph. topping most all shelled roads in county. $1,250,000. Charles R. Halle & Assocs., 2801 San Jacinto St., Houston, consult. engrs. CD 10/5 under Tex., Texas City.

EARTHWORK, WATERWAYS

▲† **Massachusetts**—U. S. Eng., 857 Commonwealth Ave., Boston, dredging, imprv. channel Mystic River, Boston, Medford, Somerville $1,100,000.

▲ **Okla., Oklahoma City**—City, City Hall, bond election Nov. 22, North Canadian River floodway imprvs. $1,050,000. W. W. Baker, city engr. CD 12/11/53.

▲† **Texas**—U. S. Eng., 100 W. Vickery Bldg., Fort Worth, initial embankment work for McGee Bend Reservoir Proj., Jasper, Jasper Co. $1,000,000. Bids in January. CD 6/9/44.

AIRPORTS

▲† **Calif., Alameda**—SHOP—Dist. P. Wks. Officer, Twelfth Naval Dist., San Bruno, plans by Geo. T. Rockrise, 524 Sacramento St., San Francisco, underseas weapon shop, Alameda Naval Air Station. $1,000,000.

▲ **Minn., Minneapolis**—OVERHAUL, MAINTENANCE AND OPERATIONAL BASE, etc.—Minneapolis-St. Paul Metropolitan Airports Comn., R. Aldrich, exec. dir., 2429 University Ave., St. Paul, plans by W. Butler Co., Inc., Minnesota Bldg., St. Paul, major overhaul, maintenance and operational base, $15,000,000; plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, administration terminal bldg., $4,500,000; plans by Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, hangar-shop-office maintenance base for Western Air Lines. $400 000, above work at Wold-Chamberlain Field. CD 6/17.

▲† **Nev., Las Vegas**—HOSPITAL—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., plans by John Brenner & Assoc., 114 W. Adams St., Phoenix, Ariz, 75-bed concrete block hospital, Nellis Air Force Base. $1,600,000. CD 7/5.

▲ **N. Y., Buffalo**—HANGARS—City, City Hall, 3 hangars at Municipal Airport. $2,000,000.

▲† **N. D., Minot**—HOUSING—U. S. Govt., Air Defence Command, Colorado Springs, Colo., plans by Brunner, Hoeffel & Bohrer, Minot, housing development, Minot Air Force Base. $2,770,000. Ira Rush, Minot, assoc. archt. CD 12/30.

▲ **Okla., Oklahoma City**—AIRPORT—City, City Hall, bond election Nov. 22, airport extens., imprvs. $4,300,000. W. W. Baker, city engr.

PUBLIC BUILDINGS

▲ **Calif., Beverly Hills**—GARAGES, etc.—City, City Hall, $5 000,000 bond election Nov. 22, garages, off-street parking lots, etc.

▲ **Calif., Campbell**—SCHOOL—Campbell Union Elementary School Dist., 111 N. 3 St., bond election Jan. 12, school addns. $1,800,000. CD 12/9/53.

▲ **Calif., Grossmont**—HIGH SCHOOL—Grossmont Union High School Dist., Grossmont, voted $2,250,000 bonds, high school in La Mesa-Spring Valley Area. Terulf Brydergaard, 423 Date St., San Diego, archt. CD 8/22.

▲ **Calif., Los Altos**—SCHOOLS—Los Altos Elementary School Dist., Box 188, bond election Feb. 2, 1956, schools. $1,153,778.

▲ **Calif., Los Angeles**—INFIRMARY, etc.—Los Angeles Co., Hall of Records, infirmary and administration bldg. $1,000,000. M. A. Nishkian & Hugh Gibbs, 1045 Sansome St., San Francisco, Zone 11, consult. engrs.-archts. CD 6/15/54.

▲ **Calif., Merced**—SCHOOLS—Merced Elementary School Dist., 555 22 St., voted $600,000 bonds Oct. 11, Galen Clark School, Sheehy School and Fremont School addns. $1,300,000.

▲ **Calif., San Jose**—HOSPITAL, etc.—Santa Clara Co. Court House, voted $3,300,000 bonds county hospital addn.; $1,500,000 for combination jail and court bldg., $350,000 for juvenile detention home. CD 9/14.

▲ **Calif., Whittier**—SCHOOLS—Whittier Union High School District, Whittier, voted $4,983,000 bonds, Oct. 14, schools. CD 7/19.

▲ **Del., Stockley**—MEDICAL—Delaware Colony Bd. Trustees, Stockley, plans by Victorine & Samuel Homsey, 917 Gilpin Ave., Wilmington, medical bldg. $1,000,000. CD 1/7.

▲ **Ill., Chicago**—HOUSING—Chicago Housing Auth., 608 S. Dearborn St., Zone 5, plans by Graham, Anderson, Probst & White, 80 E. Jackson St., Zone 4, apartment bldg. and row houses, 35 and Wentworth Sts., $10,000,000, CD 2/2/50; plans by Mittelbuscher & Tourtelot 36 S. State St., Zone 3, 196-unit apartment, $1,100,000; plans by Samuel A. Lichtmann, 1 N. La Salle St., Zone 2, 106-unit apartment, 50 and Cottage Grove, $1,000,000.

▲ **Mass., Needham**—SCHOOL—Town, 1330 Highland Ave., plans by The Architects Collaborative, 96 Mt. Auburn St., Cambridge, Junior High School addn. $1,-250,000. CD 4/22/53.

Minn., North St. Paul—SCHOOL—Bd. Educ., Independent School Dist., No. 40-105, W. G. Rupp, clk., voted $1,500,000 bonds Oct. 18, school at Hazelwood St. and County Rd. C, $700,000, E. D. Corwin & Assoc., E. 818 First National Bank Bldg., St. Paul, archts. CD 10/23/53.

Minn., Thief River Falls—SCHOOL—Bd. Educ., A. Pearson, clk., $1,000,000 bond election Nov. 17, school bldg., and addn. to existing bldg. $900,000. Swanson, Matson & Wegleitner, 500 Sexton Bldg., Minneapolis, archts. CD 6/15.

▲ **Neb., Omaha**—SCHOOLS—Douglas County School Dist. 66, 1162 S. 95 St., Omaha, RFD from Omaha, $7,500,000 bond election Nov. 15, four elementary schools; Oakdale and Hill Side Schools addns., Junior High School and Westside High School addn.

▲ **Neb., Omaha**—STUDENT UNION and DORMITORY—Omaha Bd. Regents Omaha, combination student union and dormitory bldg., University of Omaha. $1,750,000. CD 7/30/43.

▲ **N. Y., Ardsley**—SCHOOL—Bd. Educ., Ardsley, Junior-Senior High School, Secor Rd. $2,888,000. Proposal defeated by referedum voted on Oct. 15. CD 10/4.

▲† **N. Y., Brookhaven**—SERVICE AND CONTROL CENTER—Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash. 25, D. C., service and control center, synchrotron and 3 other bldgs., comprising world's largest atomic smasher at Brookhaven National Laboratories, $20,000,000. Stone & Webster Engr. Corp., 90 Broad St., New York Zone 4, consult. engrs. CD 1/13/54.

▲ **N. Y., Massapequa**—HIGH SCHOOL, etc.—Union Free School Dist. 18 of Town of Oyster Bay, Southedge School, Magnolia Dr., Massapequa, high school, $4,500,000; swimming pool for high school, $230,000. Project to be voted on at meeting on Nov. 5.

▲ **N. C., Wilson**—SCHOOLS—Bd. Comrs., Wilson Co., A. D. Williams, Court House, Wilson, voted bonds Oct. 22, school imprvs. $2,000,000.

▲ **N. D., Minot**—HIGH SCHOOL—Bd. Educ., Special Sihool Dist. 1, voted $1,110,000 bonds Oct. 4, Junior High School. Brunner, Hoeffel & Bohrer, Minot, archts. CD 1/12.

▲ **O., Cincinnati**—MEDICAL COLLEGE—City, City Hall, plans by Kruckemeyer & Strong, Carew Tower, 3 story, bsmnt., brick, rein.-con. medical college addn. $1,500,000. Fosdick & Hilmer, Union Trust Bldg., consult. engrs., plumbing, heating, elect. Hixon Tarter & Assocs., 2320 Victory Parkway, consult. engrs. structural. CD 4/20.

▲ **Okla., Norman**—LIBRARY—University of Oklahoma, Norman, plans by Coston & Frankfort, 323 E. Madison St., Oklahoma City, library. $2,700,000. CD 2/21/49.

▲ **Pa., New Castle**—HIGH SCHOOL—Shenango Area Joint School Dist., R. D., New Castle, plans by The Thayer Co., 408 Greer Bldg., brick Junior Senior High School, Shenango Twp. $1,600,000. CD 3/24.

▲ **Tex., Lubbock**—SCHOOLS—Lubbock Independent School Dist., Lubbock, voted bonds Oct. 15, Junior High School No. 1, $1,000,000; Junior High School No. 2, $1,250,000; Elementary School No. 1, $375,-000; Elementary School No. 2, $400,000; Elementary School No. 3, $350,000; Elementary School No. 4, $390,000; Elementary School No. 5, $425,000; Elementary School No. 6, $600,000; Elementary School No. 7, $550,000; Elementary School No. 8, $450,000; Elementary School No. 9, $475,000; Elementary School No. 10, $500,000; 378 classrooms, $1,310,000; cafeterias, office, $750,000; auditorium, $350,000; gymnasium, $375,000. CD 10/11.

▲ **Tex., Midland**—HOSPITAL—Midland Memorial Hospital, Midland, $500,000 bond election Nov. 19, hospital. $1,250,000. Preston M. Geren, 1607 Fort Worth Natl. Bank Bldg., Fort Worth, archt. CD 9/22/50.

▲ **Tex., Tyler**—SCHOOLS—Tyler Independent School Dist., Tyler, voted bonds, high school $2,000,000. Bruce-Russell, 419 Troup Rd., Tyler, archts.; Junior High School $1,375,000; Elementary School No. 1, $350,000; Elementary School No. 2, $400,000; Elementary School No. 3, $375,000. CD 9/6.

▲ **Wis., Stevens Point**—COURTHOUSE—Portage Co., Stevens Point, courthouse, $1,000,000.

▲ **Wis., Madison**—STATE OFFICE—State, State Office Bldg., plans by Roger C. Kirchhoff, state archt., Madison, state office. $4,600,000. CD 1/29/52.

COMMERCIAL BUILDINGS

▲ **Calif., Burlingame**—HOMES, etc.—Culligan Development Co., 3700 South El Camino Real, San Mateo, 1,800-home subdivision, 320-acre, Brewer Island, $40,000,000.

▲ **Calif., San Diego**—HOSPITAL—Hillside Hospital, 1940 El Cajon St., plans by Welton Becker & Assocs., consult. archts., 5657 Wilshire Blvd., Los Angeles, Zone 36, hospital addn., first unit, $500,000. Est. $2,000,000.

▲ **Calif., Santa Rosa**—MOTEL UNITS—El Rancho Motel, Santa Rosa, 100 addnl. motel units, enlarging restaurant and banquet room, and swimming pool. $1,500,000.

▲ **Ind., Indianapolis**—OFFICES—Stokely Van Camp Corp., 941 N. Meridian St., plans by D. A. Bohlen & Son, State Life Bldg., remodeling building for general offices. $1,000,000.

▲ **Ind., Richmond**—DORMITORY, etc.—Earlham College, Richmond, plans by Vincent G. Kling, 917 Corinthian Ave., Phila. 30, Pa., concrete, brick, steel dormitory and student union bldg. $1,250,000. CD 12/3.

▲ **Iowa, Davenport**—RESIDENCES—Quality Home Builders Inc., 837 E. River St., approx. 650 residences on 157-acre tract subdivision incl. grading, sewers, water gas and paving, just northwest of city limits. $1,000,000. Midwest Eng. Co., 1018 Mound St., consult. engrs.

▲ **Mich., Southfield**—SHOPPING CENTER—M. E. Arden Co., 1930 Guardian Bldg., Detroit, shopping center, stores and parking facilities, Franklin and Northwestern Hy. $2,000,000.

▲ **Mich., Ypsilanti**—HOSPITAL—Michigan Assoc. of Osteopathic Physicans & Surgeons, Dr. J. Paul Leonard, consultant, 13535 Woodward St., Detroit, osteopathic hospital. $1,500,000.

▲ **Minn., Edna (Minneapolis, P.O.)**—HOSPITAL—Southwest Hospital, Inc., E. F. Beddow, chn., 7120 Knox Ave. South, Richfield, plans by Ellerbe & Co., E 505 First Natl. Bank Bldg., St. Paul, 145-bed hospital, in Southdale Center, 66 St. and France Ave. S. $2,000,000.

▲ **Minn., Northfield**—DORMITORY—St. Olaf College, Northfield, men's dormitory and addn. to women's dormitory. $1,000,000.

▲ **N. Y., Brooklyn**—OFFICE—Jack J. Dorson & Assocs., c/o Lionel K. Levy, archt., 158 E. 35 St., New York, Zone 15, 14 story office, east side of Smith St. between Livingston and Schermerhorn Sts. $2,-800,000.

▲ **N. Y., New York**—RESIDENCE—St. Barnabas Hospital for Chronic Diseases, 183 St. and Third Ave., plans by York & Sawyer, 101 Park Ave., New York, Zone 17, hospital addn., employees' residence. $7,000,000. CD 10/17.

▲ **Pa., Bala Cynwyd**—OFFICE—Vernon D. Cox & Co., 1428 S. Penn Square, Phila., plans by Aaron Colish, 117 S. 17th St., Phila., office, Belmont Ave. and City Line. $2,500,000. Jack Hartman, 414 Darby Rd., Havertown, consult. engr. CD 12/17.

▲ **Pa., Canonsburg**—SHOPPING CENTER—White & Cunningham, 131 Freeport Rd., Pittsburgh, plans by Charles Roberts, 5991 Center Ave., Pittsburgh, 1 story, brick, block, steel frame shopping center, 25 stores, Donaldsons Cross Rds., near here. $2,000,000.

▲ **Pa., Pittsburgh**—OFFICE—R. A. McCormick Co., Society for Savings Bldg., Cleveland, O., plans by Wyatt C. Hedrick, T & P Bldg., Fort Worth, Tex., 10 story, 160x280 ft. masonry, glass, steel office bldg. $5,000,000.

▲ **Tex., San Antonio**—PROFESSIONAL—San Antonio Land Co., c/o Marmon & Mok and Jerry Rogers, archts., 613 South Texas Bldg., 6 story medical professional bldg., Laurel, N. McCullough, Cypress and Ogden Sts. $1,500,000. Robert E. Alexander, 2379 Glendale St., Los Angeles, Calif., consult. archt. Reynolds & Morgan, Insurance Bldg., and George R. Rhine, 209 San Pedro St., consult. engrs.

▲ **Ont., Toronto**—LAW SCHOOL—Law Society of Upper Canada, Osgoode Hall, plans by Mathers & Haldenby, 15 St. Mary St., Osgoode Hall Law School addn. $1,300,000.

▲ **Ont., Toronto**—HOUSING—Thornhill Realty Co. & Vaughan Developments Ltd., Developers, c/o R. V. Anderson & Assocs. Ltd., consult. engrs. 136 Felbrigg Ave., 2,000 unit housing program, with paved streets and services, etc. $34,000,000.

▲ **Que., Chambly**—RESIDENTIAL DEVELOPMENT—Long Island Development Corp., 304 Dominion Sq. Bldg., Montreal, plans by David Reich & Sydney Gerson, 1818 Sherbrooke St. W., Montreal, residential development, incl. 10,000 houses with sewers, roads, water, services on 20,000,000 sq. ft. of land. Over $90,000,000. Marc Hurtubise, 28 St. James St. W., Montreal, consult, engr. CD 5/11.

▲ **Que., Granby**—SHOPPING CENTER—Maxwell Cummings & Sons, 1390 Sherbrooke St. W., Montreal, plans by Ian Martin, 1200 St. Alexandre St., Montreal, 125x600 ft. shopping center, 1,000 car parking, on highway on western city limits. $1,000,000.

▲ **Que., Hull**—DUPLEXES—Simon Glazer, 25 Carriere St., plans by J. Issalys, 33 Tache Blvd., 176-unit duplex development, Alexandre Tache Blvd. $3,000,000.

INDUSTRIAL BUILDINGS

▲ **Ala., Coosa Pines**—PLANT—Coosa River Newsprint Co., c/o Kimberly-Clarke Corp., 4500 N. Commercial St., Neenah, Wis., paper plant expansion. $32,500,000.

▲ **Ark., Okay**—PLANT—Ideal Cement Co., Cris Dobvins, pres., Denver National Bank Bldg., Denver, Colo. 1,300,000 bbl. cement mfg. plant addn. incl. 152,000 bbl. storage space, 12x450 ft. kiln two 11x32 ft. grinding mills. $6,000,000. Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., consult. engr. CD 6/6.

▲ **Ark., Pine Bluff**—PLANT—Dierks Forest, Inc., Mountain Pine, kraft paper plant. $25,000,000-$30,-000,000.

▲ **Calif., Porterville**—WAREHOUSE, etc.—Rockwell Mfg. Co., 3136 E. 11 St., Los Angeles, 100,000 sq. ft. warehouse and assembly. $1,000,000.

▲ **Calif., San Diego**—STEAM PLANT, etc.—San Diego Gas & Electric Co., 861 6 St., San Diego, Zone 12, Encina Steam Plant No. 2, $10,565,000; office bldg., $1,000,000; Moreno gas compressor station, $550,000; Encanto gas compressor station addns., $650,000; Loc Coches Sub-station, $320,000. H. A. Noble, c/o owner, staff engr.

▲ **Calif., San Francisco**—PARKING GARAGE—Downtown Parking Corp., c/o John J. Gould, consult. engr., 149 California St., 1,000-car capacity garage. $1,500,000.

▲ **Conn., Windsor**—PLANT—American Radiator & Standard Sanitary Corp., 40 W. 40 St., New York, N. Y. plant to produce plumbing and heating equip. $8,000,000.

▲ **Ga., Atlanta**—PLANT—General Motors Corp., General Motors Bldg., Detroit, Mich., 300,000 sq. ft. Chevrolet and Fisher Body plants addns. $2,500,000.

▲ **Ind., East Chicago**—PLANT EXPANSION—Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, O., 4th mill expansion, incl. 25,000 kw., 11,-000 volt hydrogen coiled turbo-generator and two 600,000 pr/hr. boilers. $1,500,000. CD 2/14/52.

▲ **Iowa, Fort Dodge**—PLANT—Lehigh Sewer Pipe & Tile Co., 710 Snell Bldg., plant addn. $1,250,000.

▲ **Iowa, West Des Moines**—PLANT—Penn-Dixie Cement Corp., Central Natl. Bank Bldg., Des Moines, cement plant expansion. $4,500,000.

▲ **Kan., Topeka**—PLANT—Goodyear Tire & Rubber Co., E. Market St., Akron, O., tire mfg. plant addn. $8,000,000. CD 6/8/51.

▲ **N. J., Princeton**—RESEARCH LABORATORY—Food Machinery & Chemical Corp., 135 E. 42 St., New York, N. Y., research laboratory. $1,000,000.

▲ **O., Cincinnati**—GARAGES—Expressway Parking Co., c/o G. A. Espy, 519 Main St., two 5 story parking garages between Race and Vine Sts., Main and Walnut St., 3,500 auto capacity. $6,600,000. Vogt, Ivers, Seaman & Assocs., 34 W. 6 St., consult. engrs.

▲ **Pa., Beaver**—WAREHOUSE, etc.—Westinghouse Electric Corp., Gateway Center, Pittsburgh, 1 story, brick, block, steel warehouse and shipping, $1,500,000.

▲ **Pa., Pittsburgh**—PLANT—Pittsburgh Coke & Chemical Corp., Grant Bldg., plant, Neville Island. $3,000,000. The Lummus Co., 385 Madison Ave., New York, N. Y., engr.

▲ **Tenn., Rockwood**—PLANT—Tennessee Products & Chemical Corp., 500 American Natl. Bank Bldg., Nashville, plant for production of ferromanganese. $2,500,000. CD 8/29/46.

▲ **Ont., St. Marys**—KILN—St. Mary Cement Co., St. Marys, Ont., kiln for cement production. $2,500,000.

▲ **Sask., Regina**—PLANT—Saskatchewan Cement Corp., Ltd., Regina, cement mfg. plant, $8,000,000.

UNCLASSIFIED

▲ **California**—STATION, etc.—Southern California Edison Co., 601 W. 5 St., Los Angeles, constr. Unit 6, Redondo Steam Station No. 2, Redondo Beach, $7,400,-000; Ellis Sub-station, Los Angeles, $2,000,000; Alamitos-Del Amo 220 kv transmission line, Long Beach, $530,500; Del Amo Sub-station, North Long Beach, $2,000,000.

▲† **Calif., Vallejo**—SHIPYARD—Dist. P. Wks. Office, Twelfth Naval Dist., Design Div., San Bruno, plans by John A. Blume, 45 Second St., San Francisco, ship repair facilities, Mare Island Shipyard. $1,000,000. CD 8/18.

▲ **Oklahoma**—PARK—State Planning & Resources Bd., Capitol Bldg., Oklahoma City, Lake Texoma Park development, near Madill, $3,500,000. Allocated by State.

▲ **Okla, Oklahoma City**—PARK IMPRVS.—City, City Hall bond election Nov. 22, municipal park imprvs. $1,200,000. W. W. Baker, city engr. CD 5/15/50.

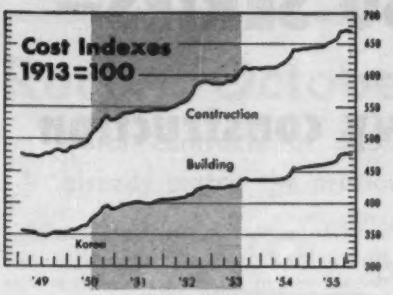
▲ **Okla., Oklahoma City**—IMPRV. FAIRGROUNDS—City, City Hall, bond election Nov. 22, imprv. fairgrounds $7,085,000. W. W. Baker, city engr. CD 5/26/53.

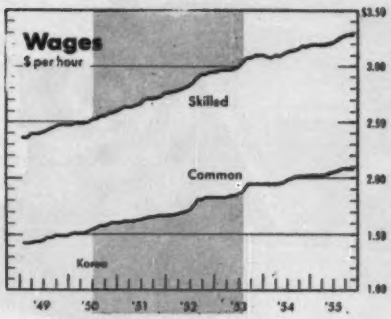
▲ **Washington**—GAS SYSTEMS—Washington Natural Gas Co., Gasco Bldg., Seattle, Zone 1, exten. gas system in Seattle, Tacoma, Everett, Renton, Tukwila, Bellevue, Bothell, Kirkland, Redmond, Kent, Auburn, Puyallup, Olympia, Centralia, Chehalis, Pacific City, Algona, Sumner, Ruston, Fir Crest, American Lake, Fort Lewis, DuPont, Union Mills, Lacey and Tumwater, during next 5 years. $21,000,000. CD 6/25/54.

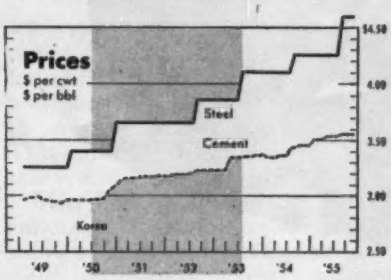
▲ **W. Va., Charlestown**—RACE TRACK, etc.—Charlestown Raceway, Inc., Charlestown, race track and club house. $2,500,000.

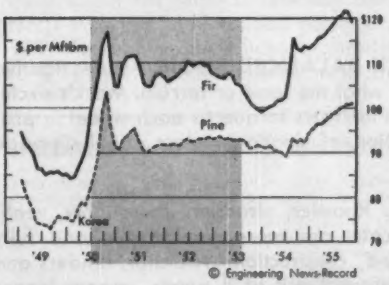
(Proposal Advertisements see pp. 84 to 86)

NOVEMBER CONSTRUCTION SCOREBOARD







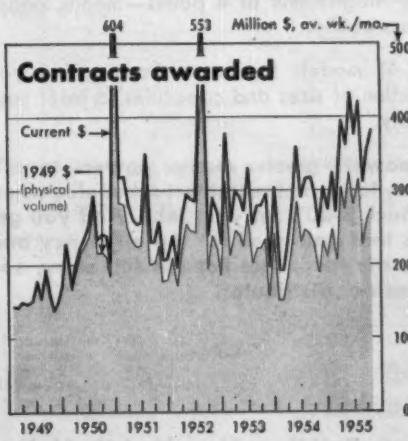


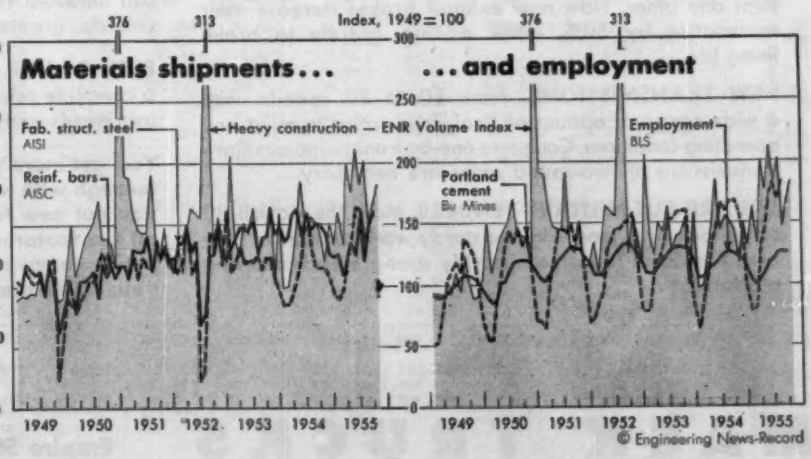
ENR INDEXES (1913=100), 20-cities' average	1955 Nov.	% Change from last Month	% Change from last Year
Construction Cost	673.20	−0.01	+4.8
Building Cost	479.30	−0.1	+5.0
WAGE RATES, 20 cities' average			
Common	$2.094	+0.04	+3.7
Skilled (aver. 3 trades)	3.289	+0.09	+3.3
Bricklayers	3.544	0.0	+2.5
Structural Ironworkers	3.276	0.0	+3.7
Carpenters	3.047	+0.3	+3.8
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.555	0.0	+2.7
Structural Steel, (3-mill aver.), per cwt	4.600	0.0	+8.2
Sand, per ton	2.372	0.0	+5.4
Lumber, 2x4 Fir, per M. ft. bm	119.791	−1.1	+5.3
Lumber, 2x4 Pine, per M. ft. bm	100.966	+0.2	+8.3
Common brick, per M	34.880	0.0	+4.9
Ready-mixed concrete, per c. y	12.655	+0.2	+3.5
Structural Clay Tile, 3x12x12 per M	166.047	+1.7	+2.1

CONTRACTS AWARDED (Millions)	1955 Oct.	1955 10-Months	% Change from '54 Oct.	% Change from '54 10-Months
Total U. S. (ENR reported)	$1,525.5	$15,659.7	+53.2	+32.4
Private	994.0	9,786.0	+89.9	+46.2
Public	531.5	5,873.7	+12.5	+14.5
Federal	130.6	1,419.7	+ 9.9	+36.6
ENR Volume Index, '13=100	628	609	+48.5	+27.4
NEW CAPITAL (Millions)				
Total	738.6	10,935.9	+25.9	+10.8
State & Municipal Bond Sales	434.7	3,595.5	+22.3	−20.8
Corporate Security Sales	297.2	2,908.1	+33.8	+19.0
Federal (non-federal work)	6.7	968.0	−27.2	+25.0
Federal (federal work)	.....	3,464.3	.....	+64.5

MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1955 Aug. (A) Sept. (S)	8-Mos. 9-Mos.	% Change from '54 Mo.	% Change from '54 Yr.Cum.
Cement, bbls. Bu. of Mines	31.580(A)	195.853(8)	+ 9.3	+ 9.5
Fabr. Struct. Steel, tons AISC	.289(S)	2.192(9)	+ 9.1	− 9.6
Lumber, mil. ft. bm., NLMA	3.665(A)	26.905(8)	+23.4	+10.6
Lumber Prod., mil. ft. bm., NLMA	3.653(A)	26.116(8)	+23.6	+ 6.8
Contract Const. Employ., BLS	2.730(S)	2.485(9)†	+ 1.2	− 1.2

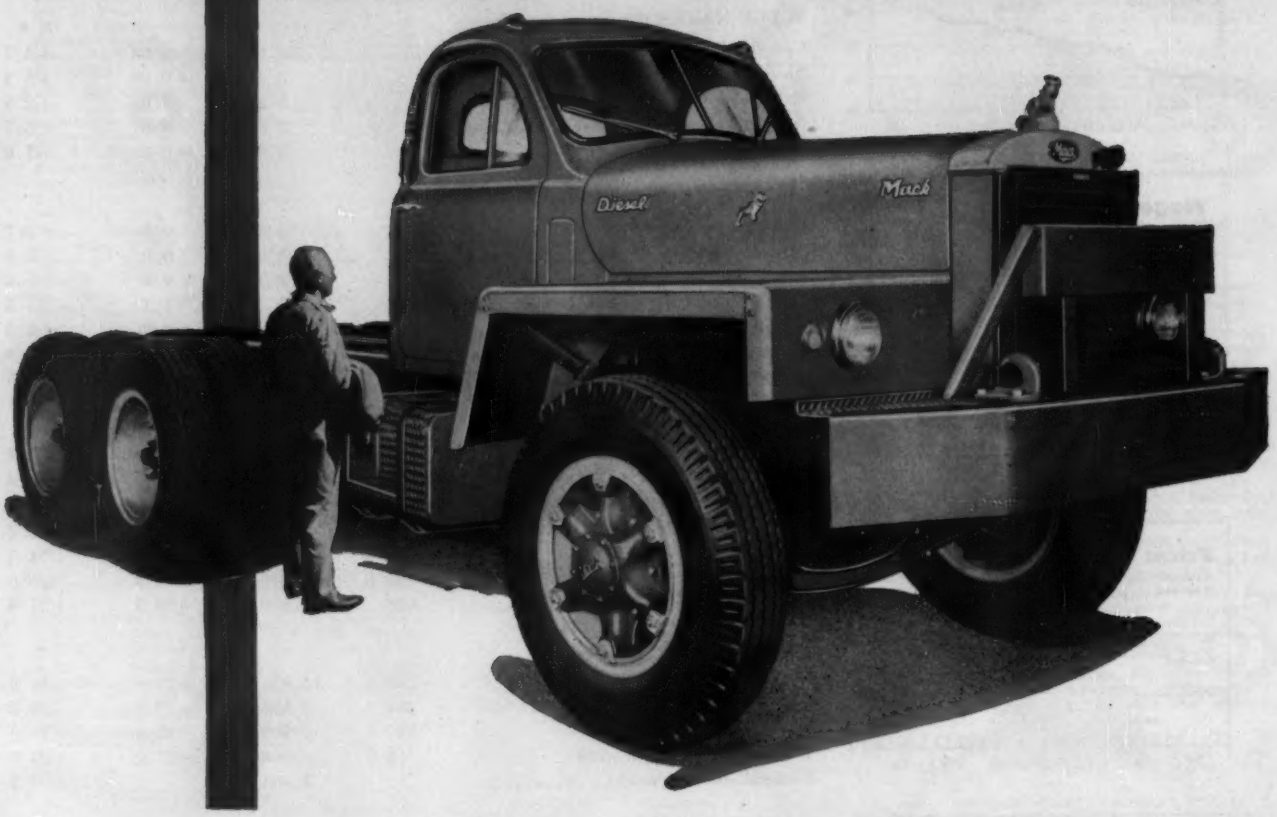
†Average





NEW Mack B-80 SERIES—

a money-making giant for heavy construction



New features make this rugged six-wheeler more powerful, sturdier . . . and a greater work producer than even its great Mack predecessors!

GREATER DIESEL POWER. Mack's famous Thermodyne® Diesel is now turbo-charged to 205 h.p.; other turbo-charged diesel power up to 262 h.p. is available.

MORE BRAKING POWER. Mack Thermodyne Diesel engines are recognized as having more braking power than any other. Now new exhaust brakes increase their retardation by 50%, while adding greatly to brake lining life.

NEW TRANSMISSIONS. From 10 to 20 speeds, with a wide range of options of final drive ratios to meet any operating conditions. Complete one-box units—no auxiliary transmissions or two-speed axles are necessary.

SQUARE-CUT MILITARY FENDERS. Make the Mack B-80 series *look* even more like the sturdy work-champions they are! Functional too—they provide strong, steady working platforms.

IMPROVED MACK BALANCED BOGIE. Assures positive traction no matter what the load or terrain. Mack's exclusive Power Divider delivers torque to each wheel in proportion to its traction, eliminating useless wheel slippage and spinning.

UNITIZED CABS. Roomier, stronger, thoroughly ventilated Mack "B" cabs are more comfortable and fully accessible. "Unitized" construction—radiator, fenders and cab mounted as integral unit at 4 points—means longer cab life, greater stability.

FULL RANGE. 11 models to choose from, giving you a complete selection of sizes and capacities to meet your own needs exactly.

You get *more* power—*greater reserve* power—to pull through with any load, on the tightest schedules when you put new Mack B-80's on your jobs. And you get all the features that you need for top efficiency and performance in the field, too! For the full story, see your Mack branch or distributor.

3471

MACK TRUCKS Empire State Building, New York 1, N. Y.

Record October Awards Keep Boom Rolling

Total contracts of $15.7 billion for first 10 months already match the previous 12-month record set in 1952

Heavy construction contractors have just signed up the biggest volume of new work ever taken on in the month of October. Contract volume topped $1.5 billion, more than 50% above October of last year. The average weekly volume of $381 million is the fourth highest for any month so far in this record year. October awards were 7% ahead of September, which itself was a record for that month.

For the first 10 months of 1955, total awards have already matched the previous 12-month record of $15.7 billion set in 1952. The total to date this year is 32% above the same 1954 period.

• **Private work**—Private construction provided the big push in October. Industrial building contracts bounced back sharply from the September lull to average $72 million per week. That's the second best month so far this year.

Mass housing also figured importantly in the October upsurge. The strong seasonal upturn in this category, which began in September, gathered more steam last month. Housing contracts averaged $132 million per week. This was the third best housing month so far in this record-smashing year for homebuilding. It indicated that builders have so far not been effected by the tighter credit terms announced in July by the Federal Housing Administration and the Veterans Administration.

Commercial building showed more strength in October than in either of the two preceding months. Awards averaged $30 million per week, topping September by 6% and October 1954 by 11%. So far in the second half of this year, commercial building is running about 16% below the record first half.

• **Public works**—State and municipal construction awards tapered off in October, which is the usual seasonal pattern. The $100-million average volume for this category was the same as it was in October 1954.

Federal contracts, on the other hand, rose for the second consecutive month. Volume for October was $33 million per week, about one-third more than the September average and 10% more than October 1954.

The most outstanding types of public work last month were: building other than housing, and bridges. Building contracts averaged $37.7 million per week, one of the best months for this category so far in 1955. For the 10 months, volume is a slight 1% ahead of last year. Bridge contracts also rose substantially during the month to average $12.1 million per week, the best showing of any month so far this year. But the 10-month bridge total is 2% behind the same period last year—the only major type of heavy construction not running ahead of 1954.

Earthwork & waterway contracts continued to rack up a large volume in October, with an average of $13.8 million per week. This type of work is now 70% ahead of 1954 for the first 10 months.

• **Regions**—Contract volume increased substantially in the western states and New England, more than offsetting a sharp drop in the South and a small decline in the Mid-Atlantic region.

So far in 1955, the South is the only region failing to show a big gain over last year's contract volume. Its 1% increase is overshadowed by whopping increases in the other regions, ranging from 20% in New England to 45% in the Mid-Atlantic and 43% in the Far West.

At midyear, the South's contract volume was up 11% over the same 1954 period, but since then volume has been dropping below the corresponding months of 1954.

(*B&F continued on page 78*)

ENGINEERING CONSTRUCTION CONTRACTS—OCTOBER 1955

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

Four Weeks—Thousands of Dollars (000 Omitted)

	October, 1955							U. S. Cumulative			
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	Ten Months 1955	Ten Months 1954	% Change '54 to '55	Canada October 1955
Public Works											
Waterworks	960	2,401	3,478	3,213	13,898	2,307	**26,257**	**231,318**	200,041	+16	2,330
Sewerage	990	12,254	5,262	5,328	4,078	3,884	**31,796**	**332,732**	317,638	+ 5	828
Bridges	2,151	5,479	15,483	2,841	14,427	7,885	**48,266**	**405,347**	409,801	− 2	1,532
Earthwork and waterways	481	4,069	3,914	2,848	10,948	33,062	**55,322**	**461,969**	272,322	+70	4,168
Streets and roads	27,878	12,080	21,289	28,401	39,648	29,631	**158,927**	**1,821,223**	1,580,301	+15	11,852
Public buildings, residential	.....	925	1,419	.....	1,638	585	**4,567**	**224,885**	198,287	+13	7,808
Other public buildings	10,582	22,577	25,704	16,021	40,961	35,117	**150,962**	**1,462,534**	1,449,285	+ 1	6,898
Unclassified	3,866	23,287	1,788	3,572	11,389	11,543	**55,445**	**933,686**	704,230	+33	4,497
Total public	**46,908**	**83,072**	**78,337**	**62,224**	**136,987**	**124,014**	**531,542**	**5,873,694**	**5,131,905**	**+14**	**39,913**
Federal government (included in above classifications)	3,738	15,417	19,707	5,681	34,294	51,803	**130,640**	**1,419,742**	1,039,308	+37	13,330
Private											
Bridges	.....	.....	240	.....	.....	.....	**240**	**2,069**	6,950	−70	.....
Industrial buildings	5,294	84,548	28,282	55,084	100,582	13,947	**287,737**	**2,342,929**	1,572,685	+49	94,535
Mass housing	7,930	210,353	3,065	145,240	112,314	48,642	**527,544**	**5,305,283**	3,491,760	+52	24,658
Commercial buildings	2,693	48,222	3,804	28,160	18,731	18,790	**120,400**	**1,393,140**	1,122,859	+24	10,784
Unclassified	.....	656	1,159	22,100	16,653	17,472	**58,040**	**742,559**	497,806	+49	5,001
Total private	**15,917**	**343,779**	**36,550**	**250,584**	**248,280**	**98,851**	**993,961**	**9,785,980**	**6,692,060**	**+46**	**134,978**
Total Engineering Construction:											
October, 1955—4 weeks	**62,825**	**426,851**	**114,887**	**312,808**	**385,267**	**222,865**	**1,525,503**	.....	.....	.....	**174,891**
September, 1955—5 weeks	67,251	566,423	252,001	331,885	401,959	166,680	**1,786,199**	.....	.....	.....	146,961
October, 1954—4 weeks	40,892	239,422	152,991	153,311	276,929	132,236	**995,781**	.....	.....	.....	95,531
Ten Months—1955	**739,640**	**4,381,597**	**1,655,535**	**3,421,933**	**3,681,970**	**1,778,999**	.....	**15,659,674**	.....	**+32**	**1,441,476**
Ten Months—1954	616,516	3,030,901	1,633,128	2,387,169	2,749,166	1,407,085	.....	.....	**11,823,965**	.....	**1,384,943**
% Change '54 to '55	+20	+45	+1	+43	+34	+26	.....	.....	.....	.....	+4

Cost Indexes Drop

Fir prices send indexes down 0.1% from record

The softening in fir lumber prices evident last month has spread to nine of the 20 cities covered by the ENR cost indexes. The result is that both the 20-Cities Construction Cost and Building Cost Indexes have declined a slight 0.1% from their all-time high in October. This is the first decline in the monthly index since September 1954. That was also caused by a drop in lumber prices.

The ENR Construction Cost Index for November is 673.20, and the Building Cost Index is 479.30, based on 1913 = 100.

The declines in Douglas fir 2x4's ranged from $1.00 per Mftbm in New Orleans to $6 per Mftbm in San Francisco. ENR's average of fir 2x4 prices for November is $119.79, off 1.1% from October and 1.3% below the all-time high reached in September.

• **Pine prices stable**—Pine prices, by contrast, have been more stable. Chicago is the only city reporting a decline in pine 2x4's off $2 per Mftbm. Baltimore and Dallas report pine prices moving up $1 and $3.50 per Mftbm, respectively. These changes push ENR's price average for pine to $100.97, highest since the record set in October 1950.

The only wage change in the 20 cities was a 2.5-cent boost for common labor in Birmingham, and a 17.5-cent raise for Baltimore carpenters that included 7.5 cents for fringe benefits.

U-A Boosts Cement

Hikes price 25¢ a bbl in biggest boost so far

Universal Atlas Cement Co., one of the biggest U.S. cement producers, will boost mill prices of standard cement by 25 cents per bbl in the first quarter of next year. Though this is the first general price increase the company has made since 1954, it is the biggest single boost in its history.

As of last week, other cement producers showed little tendency to fall into line right away. It was obvious, however, that some were studying the situation carefully. The last round of price boosts for cement became effective in the fourth quarter, when several companies announced increases ranging from 10 cents to 25 cents a barrel at plants in the Buffalo area, in Ohio, and in Florida (ENR Oct. 6, p. 104).

• **Reasons**—In explaining the reasons for the price boost, Charles B. Baker, president of Universal Atlas, which is a subsidiary of U.S. Steel Corp., took the same tack as U.S. Steel officials did when they boosted steel prices this summer. Baker says the increase is partly caused by substantial increases in labor costs. But he also mentioned the rising cost of fuel, freight, state and local taxes, goods and services in general, and higher construction costs.

Universal Atlas is now building a new 3,000,000,000 bbl plant at Buffington, Ind.—near Gary,—which will round out existing facilities. This will be ready in the second half of 1956. A new kiln will be in operation at the Fairborn, (Ohio) plant by the start of the year, adding 625,000 bbl of annual capacity. A new clinker grinding plant at Milwaukee will be finished next spring.

Adds Baker: "Plans for additional production to serve New England and other areas are currently under consideration."

Truck-Tax Troubles

Ohio cancels tax pacts with 16 other states

Last summer, the Ohio Supreme Court ruled that the state axle-mile tax on trucks could not be collected from truckers registered in states which have reciprocity agreements with Ohio (ENR Aug. 18, p. 101). Since then, the situation in Ohio has resembled the wilder moments of a Gilbert & Sullivan operetta.

First, Ohio's Governor Frank J. Lausche asked the 20-odd states with whom Ohio had reciprocity pacts to exempt the axle-mile tax from their agreements. Otherwise, he said, Ohio would cancel its pacts with them.

• **Border War?**—Several states agreed to forget about the axle-mile tax; most did nothing. But Illinois and Michigan threatened to force all Ohio drivers—whether they're piloting trucks or passenger cars—to buy new state tags if they cross the state lines. At that point, an Ohio court postponed the governor's order suspending the reciprocity pacts, pending further study.

• **Swap offered**—However, the court's injunction was lifted last week—and Ohio has cancelled its agreements with 16 states. Michigan immediately offered to give Ohio truckers exemption from Michigan truck taxes, if Ohio would do the same for its public utilities fee and the axle-mile tax.

Robert L. Moulton, chairman of the Ohio Reciprocity Board, replied last week that "we can never enter into an agreement waiving the axle-mile tax." He offered to swap an exemption from the Ohio public utilities fee for exemption from the Michigan Public Service Commission tax.

This week, everybody who had watched the earlier acts of the operetta was waiting to see what would happen next.

Better Management

UCLA calls meeting on construction practices

Feeling that construction management could take a tip from other branches of industry and become more scientific about its operations, the University of California at Los Angeles is sponsoring a conference January 27 and 28 on "construction operations."

The hope is that the conference will provide a means of communicating best current practices in planning and control of construction work. Those attending the conference would also have a chance to investigate possibilities for improving current practices by the application of proven industrial-engineering techniques.

• **Agenda**—Among subjects that will be considered are: planning and programming; cost control; the future role of labor; operations analysis; communication between designer and builder; work sampling and planning. There will be panel discussions directed to the specific problems of the various types of executives in the construction industry.

Dean L. M. K. Boelter of the Engineering School is directing the conference with a committee of engineers, educators, and construction men.

A Cement Company Keeps Its Customers Up to Date

When Hurricane Diane flooded Alpha Portland Cement Co.'s plant at Martins Creek, Pa., last August 19, the whole plant had to be shut down for rehabilitation at a time of year when demand is approaching its peak.

By the end of September, the company was again producing some ce-

(*Continued on page 80*)

In Bay Village, Ohio—Cuyahoga County Engineers combat corrosion in a BIG WAY...

WROUGHT IRON used for 48-inch Sewage Line

There was no question about the corrosion factors involved in the sewage line planned to serve Bay Village, Ohio. Compounding the problem was the almost inaccessible location that would make repair and maintenance difficult and expensive. And added to these considerations was the need for a material with sufficient structural strength to permit a 60-foot span between two trusses on either side of the valley the line had to cross. Cuyahoga County Sanitary Engineers, under the direction of Mr. John Puzenski, answered all these requirements with wrought iron. More than 37 tons of ½-inch wrought iron plate was fabricated into 48-inch diameter pipe and installed in approximately 270 feet of the sewage system.

Morgan Steel Products, Inc., Cleveland, Ohio, handled the fabrication. Installation work was done by The Utilities Construction Company, Cleveland, Ohio.

Our bulletin, *Wrought Iron for Sewage Treatment and Disposal Installations,* gives complete details on wrought iron's ability to last longer, at lower cost per year. Write for your copy.

"Operation Pipe Lift"—48-inch diameter section of wrought iron pipe being readied for shipment from Morgan Steel Products, Inc., fabricators.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. International Division: New York, N. Y. *Available throughout the world.*

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY STEEL PRODUCTS

ment at Martins Creek—and the problem of customer relations became particularly acute. Who was going to get the first cement?

So, the company produced an illustrated brochure and sent it to all its customers. The illustrations showed the difficulties of cleaning up the flooded plant. The text emphasized: "we will be impartially fair in scheduling shipments for the limited amount of cement available. Orders on file will be shipped as promptly as conditions permit . . . please realize it is absolutely impossible, under the circumstances, to ship every order immediately."

October New Construction Edges Down From September

Dollar volume of new construction put in place during October dropped for the first time since February, according to estimates by the Commerce and Labor Departments. However, the $3.9 billion total made a new record for the month—and was 11% ahead of last year. The September figure was $4 billion.

October was the fifth month in a row that new construction has set a new monthly record. So far this year, volume has been running at an annual rate of $42 billion. That would be more than 10% above 1954's record $37.6 billion. The actual total for the first 10 months is over $35 billion—13% ahead of the same period last year.

Lower spending on schools and highways put public construction activity down 5% below September. For the year so far, public construction is running only 2% ahead of 1954. Private commercial and industrial building continued to roll along in high, though homebuilding was down slightly from September.

Business Briefs . . .

• **Big steel expansion**—Inland Steel Co. plans a $260-million expansion program, to be completed by 1959. Jones & Laughlin Steel Corp. has announced a $115-million program to be finished by 1957. And Wheeling Steel Corp. will spend $65 million for improvements over the next two or three years.

• **Plant gets OK**—Consumers Public Power District of Nebraska has received preliminary approval from the Atomic Energy Commission for the plant it wants to build near Columbus, Neb. (ENR Sept. 29, p. 243). Estimated cost of the plant is $20 million. It would be finished in 1959.

• **Con Ed plant**—Consolidated Edison Co. of New York will build a 330,000 kw plant at the Arthur Kill Station on Staten Island. Cost is estimated at $69 million; completion is scheduled for 1959.

• **Shopping center bankrupt** – The Princeton (N. J.) Shopping Center, a new semi-regional center, has been declared bankrupt by a federal court.

• **Chicago utility's program** – Commonwealth Edison Co., of Chicago, says it will spend about $600 million for expansion over the five years from 1955 through 1959.

• **Turnpike traffic gain**—Traffic on the N. J. Turnpike for the first nine months of this year was up 6.4% over the same 1954 period. Tolls were up 2.6%. Tolls actually declined 2.2% in the third quarter, apparently due to the completion of the northern part of the Garden State Parkway, and because of parkway construction.

• **Clark Equipment**—Sales of this firm's Construction Machinery Division will exceed by 50% the $22-million quota established at the start of the year, according to President George Spatta.

• **Chevrolet plans**—Chevrolet Division of General Motors Corp. will build 4¼ million sq ft of manufacturing and warehouse space in the near future. Construction will take place in 15 cities.

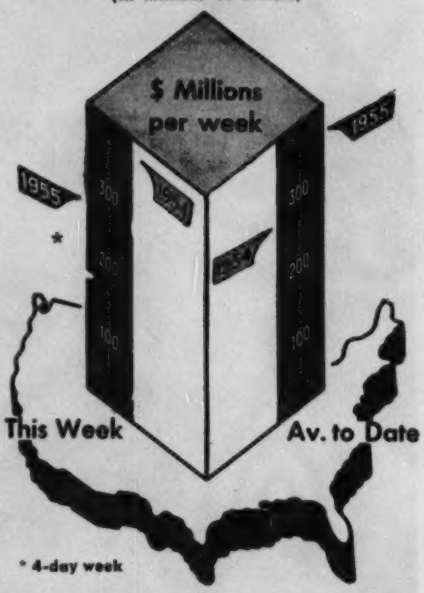
• **Other industrial plans**—Ford Motor Co. will build a 600,000 sq-ft plant near Ypsilanti, Mich. Reynolds Metals Co. will spend $11 million on expanding its plant at Listerhill, Ala.

• **New glass plant**—A group of independent glass distributors has just formed U. S. Flat Glass Corp. It will build a $16-million plant near Winchester, Va., to turn out 70 million sq ft of sheet glass and 25 million sq ft of plate glass a year.

• **Canada House**—A group of Canadian businessmen have provided financing for a $6-million building in New York City to house Canadian business, government, and cultural organizations. When their investment is paid off, the building will be turned over to the Canadian government.

Activity This Week

As reported to ENR
(In millions of dollars)



* 4-day week

Amount of contracts let

(millions of dollars)

By Ownership	This Week*	Cumulative 45 wks 1955	1954	% chge
Federal	$43.6	$1,482.0	$1,117.2	+33
State and municipal	62.2	4,613.0	4,346.2	+6
Total public	105.8	6,095.0	5,463.4	+12
Total private	162.2	10,226.6	7,019.2	+46
U. S. Total	$268.0	$16,321.6	$12,482.6	+31
By type of work				
Waterworks	$2.7	$237.8	$212.1	+12
Sewerage	2.8	342.3	348.6	−2
Bridges	7.3	422.2	449.8	−6
Highways	20.0	1,885.6	1,667.1	+13
Earthwork, waterways	20.3	484.7	278.7	+74
Buildings:				
Public, excl. hsg.	26.7	1,510.7	1,516.0	−0.3
Public housg.	2.9	238.8	232.0	+3
Private housg.	77.2	5,499.5	3,697.5	+49
Commercial	16.2	1,474.9	1,185.0	+24
Industrial	63.2	2,497.4	1,617.8	+54
Unclassified	28.7	1,727.7	1,278.0	+35
U. S. Total	$268.0	$16,321.6	$12,482.6	+31

* 4-day week

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)

	Week of Nov. 3	Cumulative 44 Wks 1955	% Chge '54-'55
Corporate securities	$58.0	$2,966.1	+20
State and municipal:			
All except housing	462.8	3,978.4	−16
Housing	5.3	85.2	−6
Federal loans	2.1	116.6	+11
Federal aid	...	853.5	+27
Total nonfederal	$528.3	$7,999.8	−1
Federal appropriations:			
In U. S.	...	$3,379.7	+63
Outside U. S.	...	84.6	+155
Total new capital	$528.3	$11,464.1	+13

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	11/3†	673.20	323.61	141.13
	9/29†	673.89	323.94	141.27
Building cost	11/3†	479.30	259.10	136.25
	9/29†	479.99	259.47	136.44
Volume	Oct.	628	255	182
	Sept.	576	234	166

† Official Indexes for Oct. & Nov.

DRILLING COSTS CUT IN HALF with this JOY TRAC-DRILL

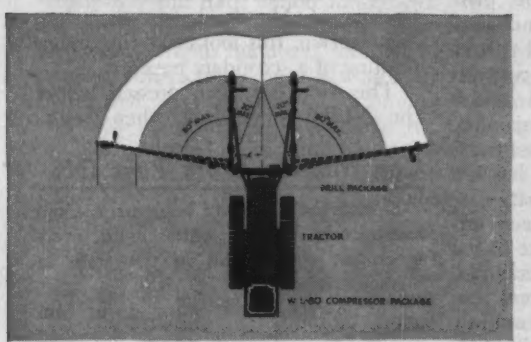
56%, TO BE EXACT was this contractor's reduction in drilling costs on his Missouri highway job, with the Joy Trac-Drill.

"STAY AHEAD OF THE SHOVELS," was the order. But *four* wagon drills driven by *two* compressors couldn't do it. Even with overtime . . . a long ten-hour day . . . the seven-man crew (four drillers, two helpers, one compressor operator) couldn't meet production.

A JOY TRAC-DRILL PACKAGE was mounted on a used tractor along with a Joy WL-80 Compressor Package. (Joy furnished complete instructions.) The rig worked like a charm. It easily led the shovels . . . and with only *four* men—two drillers, one helper and a tractor operator. The unit was completely self-contained and maneuverable. The B-I-G savings show up in the contractor's weekly cost figures:

	4 WAGON DRILLS	JOY TRAC-DRILL
Labor	$ 810	$500
Depreciation (3-yr.)	212	145
Fuel	140	86
Total	$1160	$730
Performance (week)	7200 ft.	10,200 ft.
Cost—foot of hole	16¢	7¢

THE TRAC-DRILL PACKAGE INCLUDES twin drills and feeds mounted on Joy Hydro Drill Jibs (hydraulically-actuated booms with power lift and power swing). Because the jibs are extensible, the Trac-Drill can reach out to put many holes in a straight line, if necessary, from one tractor setup. A used tractor, past its prime can thus be converted to an ace drilling machine. The whole story is in our Bulletin M-214, free for the asking. Just write ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario*



Each Hydro Drill Jib on the Joy TRAC-DRILL operates in a 100° arc making it possible with extensible 10' Jibs to drill to a 42' width.

Consult a Joy Engineer

for AIR COMPRESSORS • ROCK DRILLS • WAGON DRILLS
CORE DRILLS • BLAST HOLE DRILLS • PORTABLE HOISTS • FANS
BLOWERS • TUNNEL, QUARRY, MINE EQUIPMENT

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W&D C5469

CONSTRUCTION EQUIPMENT MANUFACTURERS
FOR OVER HALF A CENTURY

The Chicago Plan: Baltimore Gives It a Whirl

Launched last spring as a new approach to local labor problems, it has been a boon to many, a thorn to some

Last week when members of the plumbing and steamfitting trades in Baltimore began negotiations for a new contract, sponsors of the Baltimore version of the Chicago plan for settlement of construction labor disputes were given another chance to observe its effectiveness.

The plan, conceived a little over a year ago, was launched last spring. Since then, its controversial and significant aspects have attracted wide attention.

The criticism which has been leveled against it stems from the role the plan plays in the old struggle for ascendancy between union and nonunion groups.

While it represents a joint effort on the part of union contractors and the building trades to eliminate lockouts, strikes and work stoppages through use of a new arbitration procedure and various standard contract provisions, it also represents a vigorous attempt to improve the competitive position of union shop operations in an area where nonunion construction has long been the source of costly labor strife.

So far, the plan has achieved a success far beyond the expectations of its sponsors. Although now under oblique attack in an NLRB proceeding, it has won the support of 17 of the 19 building trades it sought to include. All 28 members of the AGC and over 25 non-AGC general contractors have accepted the plan. In the subcontracting field, 10 trade groups and over 350 firms are within its orbit. Under its influence, five of the building trades have amicably concluded contract negotiations, and participating members have enjoyed several months of construction without time lost by labor disputes.

• **Structure of the plan**—The key is a standard agreement entered into last March by two management and labor groups newly formed as part of the plan—Associated Construction Employers of Maryland, Inc. (which represents general, sub and specialty contractors including various building material supply and construction service firms) and the Baltimore Building and Construction Trades Unions (unrelated to the Building Trades Council, which continues undisturbed; except in the field of collective bargaining).

The agreement—which automatically becomes a part of each labor contract negotiated by any participating union and contractor group—requires that the arbitration procedure established by the agreement be tried before any lockout, strike or work stoppage is called.

Policing of the agreement is delegated to the Joint Local Trade Arbitration Board, members of which are appointed by the two labor and contractor groups. All disputes, except those relating to trade jurisdiction, must be referred to the arbitration board. Disputes between those within the plan and outside employer or employe groups, however, are referred to a Joint Conference Board, which is the plan's final authority. Jurisdictional disputes are left as before to the National Joint Board for the Settlement of Jurisdictional Disputes. In all cases, work stoppages are forbidden pending settlement.

• **Standardization**—The agreement requires that collective bargaining, which still proceeds on the individual and local level, must be conducted within the framework of the plan. Uniform travel allowances and legal holidays are established for all participating trades. A uniform contract termination date of March 31, which will permit industry-wide bargaining, is contemplated as existing contracts expire. The arbitration board has the power to make wage determinations.

So far, wage issues have been settled by the executive committee of the Joint Conference Board. For example, when the carpenters, teamsters, cement finishers and laborers couldn't reach agreement within their own trades, the committee unanimously granted a 10-cent increase effective Oct. 1 with another 10-cent boost next April 1 (plus a 7½-cent health and welfare contribution for carpenters to adjust an "inequity") and recommended uniform contract termination dates of Mar. 31, 1957. Tilesetters later followed the formula without going before the board and the same results are now expected in the plumbing trades.

• **Working conditions**—General agreement has also been reached on working conditions, further assuring "stable" and "undisturbed" conditions within the industry.

No restrictions or limitations, for instance, can be placed on the amount of work a man can perform during a working day, or upon the use of safe machinery or tools, or upon the "use of any raw or manufactured material, except prison made."

Use of apprentices cannot be prohibited and the importance of training on both the journeymen and apprentice level is recognized. Employers reserve the right to discharge for cause and agree to respect the jurisdictions of international unions. Work stoppages stemming from employment of nonunion labor in lines of work outside of construction at a common site are outlawed.

• **A red flag**—But deep in the agreement is a provision that looks like a red flag to open-shop contractors. The gist of it is that the agreement doesn't require any construction worker to work with nonunion construction workers—or for any contractor who subs for a nonunion general, or works on a nonunion construction job, where the nonunion work is the kind an AFL building trades union does.

To the Associated Builders and Contractors of Maryland, an open-shop organization, this looks like the underpinning of a secondary boycott.

This view has been pressed before the NLRB since July when Selby,

Construction Work Pays Off

During the month of September, Ohio construction workers outdistanced every other job classification in the state in average earnings.

The average weekly earnings for construction workers was $114.25 according to the Ohio State Employment Service. Their average work-week was 39.4 hours. Steelworkers were next in line with $106.09.

A general tightening in the labor market was reported for several key occupations, notably engineers, draftsmen, machinists and tool and die makers.

Statewide employment of 3.1 million was 2% under September a year ago.

Battersby and Co., Baltimore contractors, charged that it became the victim of a secondary boycott sponsored by six labor groups (including the bricklayers and terrazo internationals and the Baltimore Building Trades Council) because it refused to sign the standard agreement. Still pending, the case is of critical importance to both factions.

Meanwhile, sponsors of the Baltimore plan disclaim any connection between their efforts and Selby's plight. They point out that the standard agreement doesn't forbid union shop contractors from doing business with open-shop firms and cite, as an example, the recent bidding by one of their members for electrical work on a shopping center being built by an open-shop contractor.

Similar agreements have long been a part of predecessor plans. Conceived in Chicago in 1926, the plan has spread to other areas, including Los Angeles, St. Louis and Miami.

Development of the Baltimore plan has been closely watched by the construction industry in Washington, Wilmington and Philadelphia. Preliminary steps have already been taken to introduce it in Washington.

• **Baltimore origin**—Perhaps as good an explanation as any of why there's a Chicago plan in Baltimore is the candid appraisal of Albert Evans, general organizer of the teamster's union and chairman of the conference board. "This is a program," he said, "to meet the open shoppers and beat them through competitive free enterprise. We will do this by having better trained workers and through harmony and stability in our own ranks."

Before the plan was introduced, many felt the trade union movement in the Baltimore construction industry was "going to the dogs." Although union contractors were getting big industrial contracts from union-minded companies, the lucrative public works field was going more and more to open-shop firms. Housing was—and still is—almost completely open shop. Labor strife was rampant and costly.

The situation was discussed on the internationl level with Frank Bonadio, secretary of the AFL Building Trades Department. Out of those discussions came a series of meetings from which evolved the Baltimore plan embodied in the standard agreement of last March.

The only building trades that haven't joined in are the operating engineers—who favor it on the international but not the local level—and the elevator constructors, who are covered by a national agreement that precludes their participation.

• **Its accomplishments**—Use of the plan has already injected a substantial degree of harmony and stability into the local labor situation.

A lot of this has stemmed from the close working relationship established between labor and management. And this, incidentally, is expected to promote inter-union, as well as labor-management, harmony. Evans' stand-in as conference board chairman, for example, is Sydney Blumenthal, Jr., president of the Maryland Chapter of the National Electrical Contractors Association; board secretary is Edward Frack, executive manager of the Mechanical Contractors Association; his stand-in is Lionel Brodeur, international vice president of the metal lathers union.

A similar situation is found on the executive committee. Working shoulder to shoulder with Evans, Brodeur, John McCartin (vice president of the plumbers union) and the bricklayers' Michael Minott are Blumenthaal, C. P. Sorensen (Mason Contractors Association) and A. H. Levine (AGC president).

As evidence of the plan's success, its sponsors point to the fact that there hasn't been an hour of lost time on any job in Baltimore for any of the participants in the plan since the board was organized. They also claim that the unions have more people at work than ever before and that the number of union shop contractors is constantly growing.

According to Evans, the next ultimate objective—and one to which the forthcoming AFL-CIO merger will give added significance—is organization of the housing field.

• **A means, or an end?**—Advocates of the plan claim it has put Baltimore construction unions back on their feet. Perhaps that was its principal goal, and perhaps the issue will remain a controversial one even after the NLRB disposes of the Selby Battersby case. But few can quibble with the merits of the professed objectives, whether considered as a means to an end, or as an end in themselves.

As set forth in the preamble to the standard agreement, the plan seeks: to prevent strikes and lockouts, to prevent waste and delays, to facilitate peaceful adjustment of grievances, to provide an adequate force of skilled workmen and to promote continuous employment.

All are directed toward the fostering of "stable conditions" within the industry and the maintenance of building costs "as low as possible consistent with fair wages and conditions." The standard agreement is considered the instrument "by which these ends may be accomplished."

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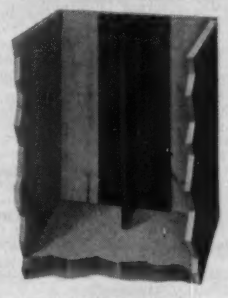

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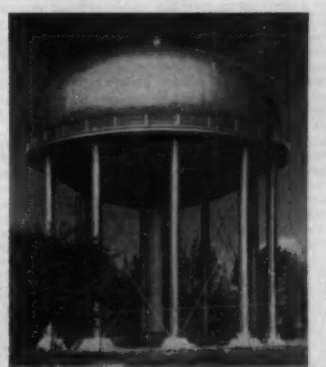

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OFFICIAL PROPOSALS

Bids: November 22, 1955

State Of New Jersey
State Highway Department
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE S-40 (1927) ROUTE 72 (1953), SECTION 5-B. GRADING from HILLIARD TO SHIP BOTTOM

Route S-40 (1927) Route 72 (1953), Section 5-B, from Hilliard to Ship Bottom, Grading, in Stafford Township, Ocean County. Federal Project No. F-130(5). Length 1.313 miles. The principal items of work are:

Estimated:

Roadway Items

110,626	cu. yds. Wet Excavation
870,624	cu. yds. Borrow Excavation
564	lin. ft. Corrugated Metal Culvert Pipe
12	Inlets

Bulkhead Items

3,675	lin ft. Treated Timber Piles
10.2	M.B.M. Treated Timber Walers
17,270	sq. ft. Treated Timber Sheet Piling
153	cu. yds. Class B Concrete
12,470	lbs. Reinforcement Steel
26,000	lbs. Galvanized W.I. Tie Rods

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, November 22, 1955, at TEN o'clock (10:00 A.M.-EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 350, 83rd Congress, and is to be performed in accordance with the "Required Provisions-Federal Aid Contracts" of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of the bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans and supplementary specifications will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Ave., Trenton, N. J., with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by the following documents: (1) a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500. nor more than $20,000.; (2) a proposal bond for a sum of not less than fifty percent (50%) of the total price bid for the project; (3) a financial statement (Part 1 of the Prequalification Questionnaire); (4) a plan and equipment statement (Part 3 of the Prequalification Questionnaire); and (5) a Non-collusion Affidavit executed in duplicate; and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids. Signed:

STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

OFFICIAL PROPOSALS

Bids: November 30, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF INTAKE, SERVICE AND EMERGENCY GATES
FOR
BARNHART ISLAND POWER PLANT AND MASSENA INTAKE
SPECIFICATIONS NO. PA-5-15054
ST. LAWRENCE CONTRACT NO. P24

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the manufacture and furnishing of forty nine (49) Intake Gates for the Barnhart Island Power Plant, and four (4) Service and (4) Emergency Gates for the Massena Intake and delivery thereof f.o.b. the Authority's Classification yard, Massena, New York in the following ways:

(1) If brought in person, on the day of receiving bids until 10:30 A.M. Eastern Standard Time on the 30th day of November, 1955, 270 Broadway, Hearing Room C on the sixth floor, New York 7, New York.

(2) If mailed in, until 10:15 A.M. Eastern Standard Time, on the 30th day of November, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposal will be publicly opened and read aloud at the time and at the address given in (1) above.

Bids will be entertained for forty nine gates, eight gates, or fifty seven gates in accordance with the bid schedule. The total weight of all gates is approximately 3500 tons. Erection at the site of installation will be done by others.

Bids will not be restricted to American manufacturers.

Plans, specifications and proposal forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York upon application and prepaying of a fee of Twenty ($20.00) Dollars per initial set of contract documents and Ten ($10.00) Dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount of not less than 10 percent of the maximum price bid for any bid schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
General Manager

PA-5-15054
10-31-55

Bids: November 30, 1955

City of New Rochelle, N. Y.
Department of Public Works

INVITATION TO BIDDERS

1. Sealed bids will be received by the DIRECTOR OF PUBLIC WORKS of the CITY OF NEW ROCHELLE, N. Y., at the COUNCIL CHAMBER, CITY HALL, 515 Main St., New Rochelle, N. Y., until 10:00 A.M. Eastern Standard Time NOVEMBER 30, 1955, for the construction of:

A SECTION OF THE
STEPHENSON BROOK STORM WATER DRAIN BETWEEN
STATION 30+00 AND 33+50
(N. Y., N. H. & H. R. R.—New England Thruway Crossing)
(Project No. 26-828-P2)
In The
CITY OF NEW ROCHELLE, N. Y.

in accordance with the Plans, Specifications and Contract Documents on file in the BUREAU OF ENGINEERING, 28 Wildcliff Drive, New Rochelle, N. Y., where they may be examined on and after October 31, 1955.

2. Each bid must be accompanied by a DEPOSIT in the form of certified check or cashier's check, made payable to the CITY OF NEW ROCHELLE, N. Y. in the amount of Twenty Thousand Dollars ($20,000.00). Bid bonds or cash will not be accepted. Each Bidder is required to submit a proposal for each of the two Alternate schemes. No bid will be accepted unless it contains two such proposals.
3. Copies of Plans, Specifications and Contract Documents may be obtained at the BUREAU OF ENGINEERING beginning October 31, 1955, upon payment of TWENTY DOLLARS ($20.00) *in cash* for each set. Upon return of all such documents in good condition within *one week* after the bidding date, TEN DOLLARS ($10.00) will be refunded. If all such documents are not returned within the specified time, the entire cash payment will be forfeited. The City reserves the right to reject any or all bids.

E. H. FELDMAN
DIRECTOR OF PUBLIC WORKS
Date: October 28, 1955

OFFICIAL PROPOSALS

Bids: December 6, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF UNIT CONTROL BOARDS
SPECIFICATIONS NO. PA-5-14017
ST. LAWRENCE CONTRACT NO. P30

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture and furnishing of sixteen (16) Unit Control Boards and delivery thereof, f.o.b. the Authority's classification yard Massena, New York, as follows:

(1) If brought in person on the day of receiving bids until 10:30 A. M. Eastern Standard Time on the 6th day of December, 1955, 270 Broadway, Hearing Room C on the sixth floor, New York, New York.

(2) If mailed in until 10:15 A. M. Eastern Standard Time on the 6th day of December, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above. Bids will be entertained for the Unit Control Boards and services in accordance with the bidding schedule. Erection at the site of installation will be done by Others but services of erecting engineers shall be provided by the manufacturers if and when required. Delivery of the Unit Control Boards, will be required in groups of 4 every six months starting September 1, 1957.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids will not be restricted to American manufacturers.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. Bid deposit will be required with each bid in an amount not less than 10 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-5-14017
10/31/55

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for State Highway Construction on (Route 7) Goodrich Street, including bridges over Housatonic River; N.Y. N.H., & H. Railroad and Konkpot Brook in the Town of STOCKBRIDGE will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. of Tuesday, NOVEMBER 22, 1955 and at that place and time publicly opened and read. Proposal guaranty: $20,000. Charge for plans and proposal forms: $10.00, amount returnable only to bidders. Complete information at said office; plans on display at District offices. Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work. By: JOHN A. VOLPE, Commissioner of Public Works. October 29, 1955.

OFFICIAL PROPOSALS

Bids: November 22, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF GATE HEATERS AND APPURTENANCES
SPECIFICATION NO. PA-5-14013
ST. LAWRENCE CONTRACT NO. P27

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture and furnishing of Gate Heaters and Appurtenances and delivery thereof, f.o.b. destination in the following ways:

(1) If brought in person on the day of receiving bids until 10:30 A.M., Eastern Standard Time on the 22nd day of November, 1955, 270 Broadway, Hearing Room C on the sixth floor, New York, New York.

(2) If mailed in until 10:15 A.M., Eastern Standard Time on the 22nd day of November 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above. Bids will be entertained for the Gate Heaters, associated equipment and services in accordance with the bidding schedule. Erection at the site of installation will be done by Others but services of erecting engineers shall be provided by the manufacturer if and when required. Delivery of the Gate Heaters and Appurtenances will be required starting July 1, 1956.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids will not be restricted to American manufacturers.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. Bid deposit will be required with each bid in an amount not less than 10 percent of the gross sum bid for the schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-5-14013
10/21/55

Bids: November 29, 1955

City of Richmond, Virginia

NOTICE TO BIDDERS

Sealed Proposals will be received at the office of the City Purchasing Agent, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A.M., E.S.T., November 29, 1955, at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Type of Work: The work to be done is part of the Sewage Disposal Project, is entitled "Division H—Gambles Mill Road Pumping Station", and comprises the furnishing of all labor, materials, equipment and work incidental thereto for the construction of the Gambles Mill Road Pumping Station, as shown, specified and directed.

Location: The Gambles Mill Road Pumping Station will be located south of and adjacent to River Road at Gambles Mill Road near the westerly corporation line of the City of Richmond, Virginia, in Henrico County, Virginia.

The Proposal and other Contract Documents may be examined at the office of the Director of the Department of Public Works, 217 Governor Street, Richmond, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the Contract Documents may be obtained from the Director or the Engineers upon deposit of Twenty-five Dollars for each set, to be refunded upon the return of such set in good condition within 10 days after the opening of bids.

J. W. HUFFMAN
CITY PURCHASING AGENT

Bids: November 22, 1955

Contract NYA-760.001

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
APRON ILLUMINATION
TEMPORARY TERMINAL BUILDING

Sealed proposals for furnishing and installing floodlighting for the illumination of the apron at the Temporary Terminal Building at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, November 22, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, November 10, 1955

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4558) will be received at Denver, Colorado, until December 15, 1955, for furnishing four motor-driven horizontal, centrifugal-type pumping units, each having the following capacities under a total head of 195 feet: two 42 cfs each; one 28 cfs; and one 14 cfs for American Falls Pumping Plant, Michaud Flats Project, Idaho. Delivery is desired within 365 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4563) will be received at Chester, Montana, until December 1, 1955, for furnishing labor and materials for Additions to River Outlet Works, Tiber Dam, Missouri River Basin Project. Location near Tiber, Montana. Principal items are installing 1,090 ft. of Government-furnished 72-inch steel outlet pipe, 5 ft. by 5 ft. high-pressure gate, and steel walkway; 5,450 cu. yds. excavation; 960 cu. yds. concrete in pipe supports, control house, and stilling basin; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, P. O. Box 218, Chester, Montana; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4560) will be received at Cody, Wyoming, until December 13, 1955, for furnishing labor and materials for Lucerne Canal and Pumping Plants, Big Horn Basin Division, Owl Creek Unit, Missouri River Basin Project, Wyoming. Location near Thermopolis, Wyoming. Principal items are 93,700 cu. yds. excavation; 700 cu. yds. concrete; 1,900 lin. ft. concrete pipe; lump sum furnishing and erecting metal building; 62,000 pounds installing four pumping units; and other work. Completion time 235 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 839, Cody, Wyoming; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4555) will be received at Winters, California, until December 20, 1955, for furnishing labor and materials for earthwork, concrete canal lining, and structures, Putah South Canal, Station 11/20 to Station 338/74, Solano Project, California. Location near Winters, California. Principal items are 1,300,000 cu. yds. excavation; 19,200 cu. yds. concrete structures and lining; 20,000 pounds welded-steel pipe; various radial gates, cast-iron gates, miscellaneous metalwork and electrical materials; and other work. Completion time 420 days. For particulars, address Bureau of Reclamation, P. O. Box 546, Winters, California; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4553) will be received at Yakima, Washington, until December 6, 1955, for furnishing labor and materials for Roza Power Plant, Yakima Project, Washington. Location near Yakima, Washington. Principal items are 36,500 cu yds. of excavation; 3,865 cu. yds. of concrete; furnishing and placing 384,000 lbs. reinforcement bars; constructing power plant building approximately 62 ft. 6 inches by 63 feet with concrete substructure and superstructure with structural steel framing and concrete masonry walls; and furnishing and installing approximately 468 feet of 10 foot diameter penstock; and other work. Completion time 685 days. For particulars, address Bureau of Reclamation, P. O. Box 1377, Yakima, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specification No. DC-4551) will be received at Blythe, California until December 6, 1955, for furnishing labor and materials for Palo Verde Diversion Dam and Levee System, Palo Verde Diversion Project, Arizona-California. Location near Blythe, California in Riverside County, California and Yuma County, Arizona. Principal items are 293,000 cu. yds. excavation for dam and structures; 157,000 cu. yds. dam embankment construction; 21,500 cu. yds. concrete for spillway and headworks; 1,980,000 cu. yds. excavation for levee system; 142,000 cu. yds. earthfill for levee system; and other work. Completion time 750 days. For particulars, address Bureau of Reclamation, P. O. Box 718, Blythe, California; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

United States Department of Commerce, Bureau of Public Roads, November 10, 1955. SEALED BIDS will be received at the office of the Bureau of Public Roads, Room 4009, General Services Building, Washington 25, D. C., until 2:00 p.m., e.s.t., December 15, 1955, for construction of Inter-American Highway Projects 75-56-3A (Roadway) and Project 75-56-3B (Bridges), in the Republic of Costa Rica, between San Ramon and the northern border of Costa Rica. Bidders may submit bids on following alternate basis: Alternate "A" for Roadway items only; Alternate "B" for Bridge items only; Alternate "C" for Roadway and Bridge items combined on all-or-none basis. The approximate quantities of the more important work are: ROADWAY: 640,000 cubic meters Roadway Excavation; 445,000 tons Crushed Gravel or Stone Base Course; 1,066,000 square meters Reconstructed Base Course; 1,460,000 square meters Asphalt Road Mix Surface; 11,700 tons cut-back asphalt. BRIDGES: 7,700 cubic yards Structure Excavation; 6,800 cubic yards Class "A" Concrete; 316 tons Reinforcing Steel furnish and place; 198 tons Reinforcing Steel-place only; 436 tons Structural Steel furnish and erect; 398 tons Structural Steel erect only; 1,200 lineal feet timber foundation piling. Special conditions of work performed by U. S. Government in foreign areas apply as well as local laws. Plans, Specifications and Proposal Forms are available upon request at the address given above, or Bureau of Public Roads, Fifth Floor, Gran Hotel Costa Rica, San Jose, Costa Rica. C. D. Curtiss, Commissioner.

OFFICIAL PROPOSALS

Bids: November 30, 1955

The Mississippi River Bridge Authority

CONTRACT NO. 6
INVITATION TO TENDER

The Mississippi River Bridge Authority of the State of Louisiana invites proposals for the construction of the superstructure of the deck truss spans for the Greater New Orleans Bridge over the Mississippi River at New Orleans, Louisiana. Sealed proposals for the work described will be received by the Mississippi River Bridge Authority in the Office of the Authority, 422 City Hall Annex, New Orleans, Louisiana, until 10:00 A.M., Central Standard Time, November 30, 1955. Proposals will not be received after this hour. At 10:00 A.M. of the same day and date, the proposals will be publicly presented, publicly opened and publicly read in the Commission Council Chamber, City Hall.

This Contract No. 6 covers the furnishing of all materials for and the construction of the deck truss spans superstructure of a four-lane highway bridge over the Mississippi River in the vicinity of Thalia Street in New Orleans and Bringier Street in Gretna.

A fuller description of the work to be done and of the requirements, provisions, and details thereof is given in the contract drawings, contract documents and specifications, copies of which are on display in the Office of the Authority, Room 422, City Hall Annex, New Orleans, Louisiana, and in the Offices of the Engineers, Modjeski and Masters, 2400 Canal Street, New Orleans, Louisiana, and State Street Building, Harrisburg, Pennsylvania, or may be obtained from the Harrisburg Office upon payment of Twenty Dollars ($20.00) per set. Deposit checks shall be made payable to Modjeski and Masters.

Deposits will be refunded for all plans returned in good condition within ten (10) calendar days after receipt of bids.

No proposals will be received unless accompanied by a certified check satisfactory to the Authority drawn upon a National or Louisiana State Bank or Trust Company having an office or place of business in New Orleans, Louisiana and payable to the order of the Mississippi River Bridge Authority for the sum of One Hundred Fifty Thousand ($150,000) Dollars as security for the proper execution of the contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the Office of the Authority. Proper receipt for the deposit will be given by the Authority.

THE MISSISSIPPI RIVER BRIDGE AUTHORITY
NEVILLE LEVY,
Chairman

Bids: November 30, 1955

Sanitary Trunk Sewer

LEGAL NOTICE

SEALED PROPOSALS will be received at the office of the DIRECTOR OF PUBLIC SERVICE, AKRON, OHIO, until 12:00 o'clock noon (Eastern Standard Time) Wednesday November 30, 1955 for the construction of the:

MUD RUN SANITARY TRUNK SEWER
FROM
LEESER AVENUE
TO
HAWKINS AVENUE

Drawings, specifications and blank proposals can be obtained at the office of the Engineer of the Division of Sewerage, by making a deposit of Five Dollars ($5.00). This deposit will be refunded if a proposal is submitted and the drawings are returned in good condition, within five days after the date the proposals are received.

Each proposal must contain the full name of the party or parties making the same, and all persons interested therein, and must be accompanied by a certified check in the sum of Five (5) per cent of the total bid on a solvent bank, as a guarantee that if the proposal be accepted, a contract will be entered into.

Bidders must use the printed form, as none other will be accepted.

The Director of Public Service reserves the right to reject any or all bids.

THE CITY OF AKRON, OHIO
BY Leo G. Walter
Director of Public Service

Bids: November 17, 1955

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Barge Canal Improvement Law and Public Buildings Law, sealed proposals will be received, until 10:30 A.M., on November 17, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract U. S. 89 for Lowering the Lower Sill, Footing of Approach Wall, Floor of Lock Chamber, Installing New Lower Gates and Performing Other Misc. Work at Lock No. 9, Erie Canal, Schenectady County, New York

AND

Contract B.P. 55-55 for Beach Protection (Hydraulic Fill and Sprigging) at Smith Point Town of Brookhaven, Suffolk County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, N. Y.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract U.S. 89 may be examined and obtained at the office of Mr. G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y. and the plans, maps and specifications for Contract B.P. 55-55 may be examined and obtained at the office of Mr. M. E. Goul, District Engineer, 325 W. Main Street, Babylon, L. I., N. Y.

The deposit for Plans and Proposal Forms for each contract is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's Estimate of Cost for Contract U.S. 89 is confidential and will be made known at the time of receiving bids. The Engineer's Estimate of Cost for Contract B.P. 55-55 is $528,000.00.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of five percentum, (5%) of the bid. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Barge Canal Improvement Law for Contract U.S. 89 and to the Public Buildings Law for Contract B.P. 55-55, as set forth in "Instructions to Bidders" in the respective contract specifications.

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: November 17, 1955

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR CLEARING OF
LONG SAULT AND DELANEY ISLANDS
AND ADJACENT MAINLAND AREAS
NEAR MASSENA, ST. LAWRENCE
COUNTY, NEW YORK
SPECIFICATION NO. PA-5-11014

ST. LAWRENCE CONTRACT NO. 24

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the clearing of Long Sault and Delaney Islands and adjacent mainland areas near Massena, St. Lawrence County, New York in the following ways:

(1) If brought in person on the day of receiving bids until 10:30 A.M. Eastern Standard Time on the 17th day of November, 1955, at 270 Broadway, Hearing Room C on the 6th floor, New York, New York

(2) If mailed in, until 10:15 A.M. Eastern Standard Time on the 17th day of November, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above.

The work consists of approximately 1,433 acres of clearing and shall be completed on or before July 1, 1956.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, may be inspected by prospective bidders during office hours and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set and Five ($5.00) dollars per set for additional sets, no part of which will be refunded.

Bids will not be restricted to American contractors.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Each proposal must be accompanied by a draft or certified check payable to the order of the Power Authority of the State of New York in an amount not less than 10 per cent of the gross sum bid.

The right is reserved to reject any or all bids

10/25/55
PA-5-11014

W. S. CHAPIN
GENERAL MANAGER

Bids: November 30, 1955

The Mississippi River Bridge Authority

CONTRACT No. 5
INVITATION TO TENDER

The Mississippi River Bridge Authority of the State of Louisiana invites proposals for the construction of the substructure of the deck truss spans for the Greater New Orleans Bridge over the Mississippi River at New Orleans, Louisiana. Sealed proposals for the work described will be received by the Mississippi River Bridge Authority in the Office of the Authority, 422 City Hall Annex, New Orleans, Louisiana, until 10:00 A.M. Central Standard Time, November 30, 1955. Proposals will not be received after this hour. At 10:00 A.M. of the same day and date, the proposals will be publicly presented, publicly opened and publicly read in the Commission Council Chamber, City Hall.

This Contract No. 5 covers the furnishing of all materials for and the construction of the eight piers, designated A, B, C, D, E, F, G & H, supporting the deck truss spans of a four-lane highway bridge over the Mississippi River in the vicinity of Thalia Street in New Orleans and Bringier Street in Gretna and incidental construction.

Piers A, B, C, D and E are located on the New Orleans bank, above high water, on the land side of the Thalia Street Wharf, between Pilie and Tchoupitoulas Streets and consist of twin reinforced concrete shafts supported by cast-in-place concrete pile founded footings.

Piers F, G, and H are located on the land side of the Algiers Levee and consist of twin, reinforced concrete shafts supported by treated timber pile founded footings.

A fuller description of the work to be done and of the requirements, provisions, and details thereof is given in the contract drawings, contract documents and specifications, copies of which are on display in the Office of the Authority, Room 422, City Hall Annex, New Orleans, Louisiana, and in the Offices of the Engineers, Modjeski and Masters, 2400 Canal Street, New Orleans, Louisiana, and State Street Building, Harrisburg, Pennsylvania, or may be obtained from the Harrisburg Office upon the payment of Twenty Dollars ($20.00) per set. Deposit checks shall be made payable to Modjeski and Masters.

Deposits will be refunded for all plans returned in good condition within ten (10) calendar days after receipt of bids.

No proposals will be received unless accompanied by a certified check satisfactory to the Authority drawn upon a National or Louisiana State Bank or Trust Company having an office or place of business in New Orleans, Louisiana and payable to the order of the Mississippi River Bridge Authority for the sum of One Hundred Fifty Thousand ($150,000) Dollars as security for the proper execution of the contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the Office of the Authority. Proper receipt for the deposit will be given by the Authority.

THE MISSISSIPPI RIVER BRIDGE AUTHORITY
NEVILLE LEVY,
Chairman

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work

Civil Service Opportunities....
Selling Opportunities Wanted
Selling Opportunities Offered

Employment Agencies
Employment Services
Labor Bureaus

DISPLAYED —RATES— **UNDISPLAYED**

The advertising rate is $24.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

$1.80 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Box Numbers—counts as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW ADS to ENGINEERING NEWS-RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for November 24th issue closing November 11th

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Graduate Civil Engineers or Architectural Engineers not over 27 and single, or if married, willing to move. Must have military training completed and interested in learning the building construction business, starting in the field. We offer opportunity for rapid advancement to ambitious, hard-working young men willing to accept responsibility. Starting salary $92.50 per week if unexperienced with higher rates for those with some experience. Not unusual for our engineers to increase their salary 20% to 25% first year. Send complete history data. Martin K. Eby Construction Co., Inc., 610 N. Main, Wichita 5, Kansas.

Wanted recent civil or mechanical engineering graduates, general field municipal water supply. Annual increase in salary and bonus. Profit sharing plan. Pitometer Associates, Engineers, 50 Church Street, New York City.

Professional engineer and licensed land surveyor (N. J.). To head engineering department for residential developer. Experienced in designing plans for sanitary sewers, storm sewers, roads and other work incidental to developments. Starting salary open. Write stating age and experience. G & H Construction Company, 21 Michigan Avenue, Kenilworth, New Jersey.

Assistant City Engineer for Wisconsin City with 15,000 population. Registration as professional engineer in Wisconsin is desirable as appointment as City Engineer may be possible upon retirement of present City Engineer. In first letter, state age, experience, and salary expected. P-8135, Engineering News-Record.

Designers for toll roads and bridges. Experienced and inexperienced men with a civil engineering degree wanted (for a period of about 24 months) in the office of a well known organization in central Pennsylvania. State qualifications, age, salary requirements and availability in first letter. P-8158, Engineering News-Record.

Cost Engineer—In charge of department responsible for all cost keeping, progress reporting and estimating extras and changes of contract scope, on large foreign Air Base project. P-8163, Engineering News-Record.

Wanted Superintendent, highway and heavy construction in Eastern United States. Applicant must be cost conscious and ambitious. Permanent position and liberal compensation for right man. P-8249, Engineering News-Record.

(Continued on page 89)

ENGINEERS - DESIGNERS - DRAFTSMEN
for work on
BRIDGES AND EXPRESSWAYS

Opportunity for continuous employment in our Cincinnati, Louisville & Chicago offices for graduates or engineers with practical backgrounds. Overtime allowance, paid vacations and holidays, insurance and retirement plan.

Please give detailed personal and experience record, three competent references and salary expected in first letter.

Hazelet & Erdal, Consulting Engineers
Dixie Terminal Bldg.
Cincinnati 2, Ohio

DESIGNERS
DRAFTSMEN

STRUCTURAL
MECHANICAL
ELECTRICAL

Openings in field of Industrial and Power Plant Design

JACKSON & MORELAND
ENGINEERS
600 Park Square Bldg.
Boston 16, Mass.

CIVIL ENGINEER
for Madrid, Spain

. 18-Month Contract
. . No Income Taxes
. . . No Family Restrictions
. . . . U. S. Citizen

Graduate civil engineer or equivalent background, training and experience. Broad experience in design of major grading and paving projects. Design experience in major air force, naval or civil airport projects desirable. Capable of writing specifications, technical reports, etc., for design.

Send complete resume and salary desired to:

PERSONNEL MANAGER
A.E.S.B.
250 Hudson St. N. Y. 13, N. Y.

ENGINEERS

EMPLOYMENT IN CALIFORNIA

Established, progressive engineering firm engaged in domestic and atomic energy program offers opportunity for immediate placement in

LOS ANGELES

ENGINEERS
DESIGNERS
DRAFTSMEN

Mechanical
Structural
Electrical

MATERIAL TAKE-OFF MEN

ESTIMATORS

Please mail resume indicating education, experience and salaries to Attn: A. W. Jamieson, Jr., 828 S. Figueroa St., Los Angeles, Calif.

HOLMES & NARVER, INC.
828 S. Figueroa St.
Los Angeles, California

U. S. CITIZENSHIP REQUIRED

PLATE DESIGNER and ESTIMATOR

Graduate Engineer, Civil or Mechanical with several years experience. We fabricate all types of tanks, stacks and breeching. Work location in large Southern city.

Permanent employment, liberal company benefits, salary commensurate with experience. Write fully in confidence stating experience, education and salary requirements to:

P-8166, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

DESIGN ENGINEERS

PERMANENT OPPORTUNITIES with McKEE

IN OUR REFINERY, METALS OR INDUSTRIAL DIVISIONS AT OUR CLEVELAND, OHIO OFFICES

McKee with more than 50 years of successful operation, doing business all over the world; is one of the largest, oldest and best known engineering and contracting firms in the business. The McKee organization continues to grow and expand, thereby offers many present and future opportunities for qualified and experienced engineers and designers in the following fields:

PIPING
STRUCTURAL STEEL
CONCRETE
PROCESS HEATERS
EQUIPMENT SPECS.
ALSO
ELECTRICAL DRAFTS.
LAYOUT ENGINEERS
PROCESS ENGINEERS

Applicants should have at least five years' of experience.

Here is a rare opportunity for you to utilize your engineering abilities and talents.

McKee offers top compensation commensurate with experience and ability. No age limitations.

Transportation & Moving Allowances

Please Send Resume to:

Edward A. Kolner
ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

DESIGN ENGINEERS

PERMANENT OPENINGS FOR QUALIFIED ENGINEERS EXPERIENCED IN DESIGN OF:

STRUCTURAL STEEL REINFORCED CONCRETE

APPLICABLE TO DESIGN OF BRIDGES, BUILDINGS, TEST FACILITIES, AND GENERAL INDUSTRIAL STRUCTURES.

also

PIPING DESIGN & LAYOUT HEATING & VENTILATING POWER AND LIGHTING

APPLICABLE TO DESIGN OF INDUSTRIAL FACILITIES, TEST FACILITIES, POWER PLANTS AND ELECTRICAL INSTALLATIONS.

OPENINGS ALSO AVAILABLE FOR DRAFTSMEN, DETAILERS AND SEVERAL RECENT GRADUATES.

We desire engineers who want long range employment with ample opportunity for professional development and advancement. Employee Benefits Plan plus other attractive features.

Please write fully to

SVERDRUP & PARCEL, INC.
Consulting Engineers
915 Olive Street St. Louis 1, Mo.

civil estimator

Large New York engineering and construction firm has staff opening for Chief Civil Estimator. Should be graduate civil engineer with experience in power plant field. Particularly interested in a man with field engineering or construction supervisory experience on hydroelectric developments. Should be capable of heading up civil estimating group. Excellent opportunity for qualified man. Please submit resume of education, experience and personal data.

P-8219, Enginering News-Record
330 W. 42 St., New York 36, N. Y.

ESTIMATORS

Experienced in Process Equipment and piping costs, for Chemical Plant & refinery construction. Position offers good future with progressive Penna. firm. Send resume to

T-95, P. O. BOX 3495
Philadelphia 22, Pa.

STRUCTURAL ENGINEERS BRIDGE DESIGNERS

Excellent opportunity for Structural Engineers experienced in design of structural steel or reinforced concrete, who desire to work with an established organization on large, long-term expressway programs. Recent graduates and detail draftsmen accepted. Pleasant living conditions in Harrisburg, Pennsylvania. Insurance, pension and bonus plans reward service.

Send complete outline of experience, date available and salary desired in first letter to:

GANNETT FLEMING CORDDRY & CARPENTER, INC.
Box 366, Harrisburg, Pa.

ENGINEERS

Designers Detailers Draftsmen
for work on
Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY
PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE
INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

Howard, Needles, Tammen & Bergendoff
1805 GRAND AVE. KANSAS CITY 8, MO.

ENGINEERS

HIGHWAYS AND BRIDGES

Designers
Draftsmen
Office Engineers
Maintenance Engineers
Project Engineers
Location Engineers
Soils & Materials Engineers

Domestic and Overseas Assignments
Knowledge of Foreign language necessary in some classifications.

Write, giving full particulars concerning education, experience, personal history and availability to:

Richard L. Shaw
Personnel Director
Michael Baker, Jr., Inc.
Consulting Engineers
Baker Building Rochester, Penna.

ASSISTANT CHIEF ENGINEER

EXPERIENCED IN DESIGN OF HIGHWAY STRUCTURES, AIRPORTS

Responsibilities: In charge of Engineering Design in district office of consulting engineering firm.

Location—Pennsylvania—Permanent Position—Salary—High—Age 40-55

All replies kept strictly confidential.

P-8197, Engineering News-Record
330 West 42nd St., New York 36, N. Y.

POSITION VACANT
(Continued from page 87)

Architects and Architectural Draftsmen — Qualified through training and experience to design churches, schools and other buildings. Give full information as to education, experience, salary requirements and when available. Location Eastern New York. Reply P-8242, Engineering News-Record.

Engineers—Experienced in design and preparation of plans for water works and also men experienced in inspection of water works construction. Advise education, experience, salary requirements and when available. Location Eastern New York. Reply Box P-8248, Engineering News-Record.

Wanted: A Sales Engineer to handle the sale of granite for construction purposes. Personnel Department, Rock of Ages Corporation, Box 482, Barre, Vermont.

Civil Engineer—Desired immediately by the City of Birmingham. Starting salary $4966 per yr., 40-hr. week and liberal vacation, sick leave, holiday, group insurance, and retirement benefits. Must be college graduate in civil engineering; experience desirable but not necessary. Submit complete written application to Asst. City Mgr., Birmingham, Michigan.

The City of Cedar Rapids, Iowa is accepting applications for a Public Health Engineer. Age, 25-50 years. Qualifications—Degree in Sanitary Engineering from an accredited school of engineering. Two years Public Health experience, Municipal, State, or Federal. Salary $450-525 per month, contingent to your qualifications and experience. Applications must be returned by December 15, 1955. They may be obtained by writing the Civil Service Commission, City Hall, Cedar Rapids, Iowa.

Instrument Men—West Indies surveys, plot layout, some development planning send resume, recent photo and salary requirements. P-8209, Engineering News-Record.

Electrical Engineer — As assistant superintendent for Midwest Municipal Electric and Water Utility. Experience in design, planning and operation of 2400/4160 volt distribution systems. Knowledge and experience in steam generation plants desirable. Excellent opportunity for advancement. Age 32-45. P-8214, Engineering News-Record.

POSITIONS WANTED

Mechanical Engineer, 58 years old, now employed on construction project nearing completion, seeks position of responsibility with engineer, contractor or manufacturer in charge of construction, design or maintenance. Well qualified for all. Good organizer, able administrator. Prefer industrial north-east. $10,000.-$15,000. PW-8038, Engineering News-Record.

Executive Engineer — Superintendent. Lic. prof. engineer. Qualified journeyman 6 trades prior to B.S. degree engineering. Cost conscious. Excellent administrator and public relations. Assumes full responsibility with modern know-how to complete, on schedule, schools, hospitals, airports, bridges, industrial and other construction. Principals only. PW-8175, Engineering News-Record.

Contractors Asst. or General Supt. Will travel U.S. or overseas. 25 years exp. on construction of piers, docks, river intakes, caissons, subaqueous work and all types of pile foundations and cofferdams. Estimate, bid, negotiate and supervision. Engineering background, good following of key men. Excellent references. Available after 1st of year. PW-8113, Engineering News-Record.

Construction Sup't. over 20 years experience, industrial and high class finished projects. Engineer. Anywhere. Salary $200. PW-8252, Engineering News-Record.

CONTRACTORS-SURETIES

My Associates and I have taken over and successfully completed more than twenty-five sizeable construction contracts of all types for Sureties and Contractors in the past two years.

We are prepared to handle your problems on almost any basis that will tie in with your own ideas. We sometimes use part or all of the Contractor's present organization, and in other cases we furnish all new administrative personnel for both field and office activities.

If you are a Contractor in financial difficulty on bonded jobs or a Surety with defaulted contracts to complete, we probably can be of real help to you.

Inquiries invited — write or wire

B. F. Bleuer & Associates

116 Mona Drive Buffalo 15, New York

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Immediate Openings
OVERSEAS
On Defense Projects

12 month optional contract
SINGLE STATUS ONLY
Good pay & Accommodations.

Must have degree or equivalent plus 6-10 years experience.

P-8255, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

BRIDGE ENGINEERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:
Detailers—3 years structural steel or reinforced concrete detailing.
Designers—4 years responsible work on structural steel and concrete including work on long span bridges.
Mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street New York 5, N. Y.

POSITIONS WANTED

Construction Supt. or Gen'l Supt, age 44 good health married civil engineer training. 15 years diversified state, super highway and appurtenance structures, clean character, reliable, good record available Nov 1st, go anywhere. Urgent. PW-8172, Engineering News-Record.

Construction Management. Age 38, B.S.C.E. Prof. Engr. Thirteen years varied experience with high type companies. Employed at present as General Supt. and Project Manager on public and private large buildings and institutions. PW-8211, Engineering News-Record.

Construction Engr. Reg. Prof. Engr. C. E. Grad. 22 years const. experience. 12 of which as supt. of const. Experience 60% heavy 40% industrial & building. Desire permanent position one location. Age 42. PW-8210, Engineering News-Record.

Construction Supervisor — Civil Engineer BSCE 5 years experience in soils, asphalt and concrete. Airfields, rails and highways. Desire foreign work. Go anywhere. Resume on request. Available 15 December. PW-8251, Engineering News-Record.

Bridge Engineer — Designer, Registered, 25 years experience, with highway commission, Bureau Public Roads and consultant. PW-8250, Engineering News-Record.

SEARCHLIGHT SECTION

(Classified Advertising)

BUSINESS OPPORTUNITIES — EQUIPMENT - USED or RESALE

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$1.80 a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
PROPOSALS, $1.80 a line an insertion.
BOX NUMBERS count as one line additional in undisplayed ads.
DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page.
EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

Send NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd N. Y. 36, N. Y. for November 24th issue closing November 11th

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

BUSINESS OPPORTUNITIES

Established Penna. Contractor seeks a contractor or investor for the production of sand & gravel in a non-competitive Pa. area where $250,000 in profits can be realized annually. These materials have been tested and meet state specifications. BO-8096, Engineering News-Record.

For Sale—Established Engineering Co. in Rockford, Ill. Reputation for quality work in utility gas mains and steam main construction, power house piping and propane plant construction. Write Mrs. Kay M. Laswell—Byron, Ill.

CAPITAL NEEDED

Corporation six years successful operation in limited territory needs capital and personnel for expansion. Rental steel removable forms for construction concrete bridges. Proven time and cost saving over conventional method. Ideal for foreign construction where skilled labor unobtainable.

BO-8205, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.

GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
P.O. Box 921 Lake Worth, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year. Write today — without obligation.

WILSON *Engineering Corp*
College House Offices, HARVARD SQ. CAMBRIDGE MASS.

For OPPORTUNITIES Abroad

That can mean increased
PROFITS
Send TODAY for free sample of our monthly, worldwide, round-up:
FOREIGN CONSTRUCTION PROJECTS SURVEY

Economic Intelligence Service, Inc.,
1025 Vermont Ave., N. W., Washn. 5, D. C.

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USED • REBUILT • SALE
RENT • REPAIRING

expert repairs or complete overhauling by skilled craftsmen on all makes and types. Precision guaranteed.

FINE RENTAL INSTRUMENTS

Reasonable rates, on monthly or yearly basis. All instruments guaranteed to be in first class condition.

David White COMPANY
319 W. Court St. Milwaukee 12, Wis.

ALL MAKES INSTRUMENT REPAIRED

Experienced specialists and proper equipment guarantee fast work and dependable results at minimum cost.

FILOTECNICA SALMOIRAGHI, INC.
41-14 24TH ST., LONG ISLAND CITY 1, N.Y.

SALE OR RENT

TRACTORS—5 D-8's—2 U—16000 SERIES TOP CONDITION WITH NEW OR NEAR NEW TRACKS

AND

SCRAPERS—5 CAT. 80's AND LA TOURNEAU (HD-20 G FRONT LOADER—4½ CU. YD.)

NORTHWEST—80 D—NEW—AND HIGH WITH HEAVY AXLE. SPEED BOOM HOIST 50 TON CAP. 80 FT. BOOM.

AND

NORTHWEST—80 D SHOVEL—LATE MODEL—NO. 25 COMBINATION SHOVEL—CRANE—CLAM

MANITOWOC—4500—140 FT. BOOM—7 YD.—5 YD. BUCKETS

EUCLIDS—3—15 TON END DUMPS

EUCLIDS—12—71 FDT BOTTOM DUMPS

EUCLIDS—10—43 FDT BOTTOM DUMPS
ALL READY TO WORK—30 TO 90 DAYS USE SINCE REBUILT

TRACTORS—2—TD-18's WITH POWER UNIT AND PUSH BLOCK
2—HD-20's WITH POWER UNIT AND PUSH BLOCK

MOTOR GRADERS—3—#12 CAT. 8T SERIES

CONTACT MR. ROBERT B. CLEARY

A. L. DOUGHERTY COMPANY — *CONTRACTORS*

830 SO. PEARL ST.
ALBANY, NEW YORK
PHONE - 32435

10111 SO. TORRENCE AVE.
CHICAGO, ILLINOIS,
PHONE - ESSEX 5-7676

FOR SALE

¾ Yard Dragline Bucket, New, Page RM, not perforated, medium weight.
Price $710.00 F.O.B. cars or trucks.

¾ Yard Dragline Bucket, New, Hendrix T.S. perforated, medium weight.
Price $850.00 F.O.B. cars or trucks.

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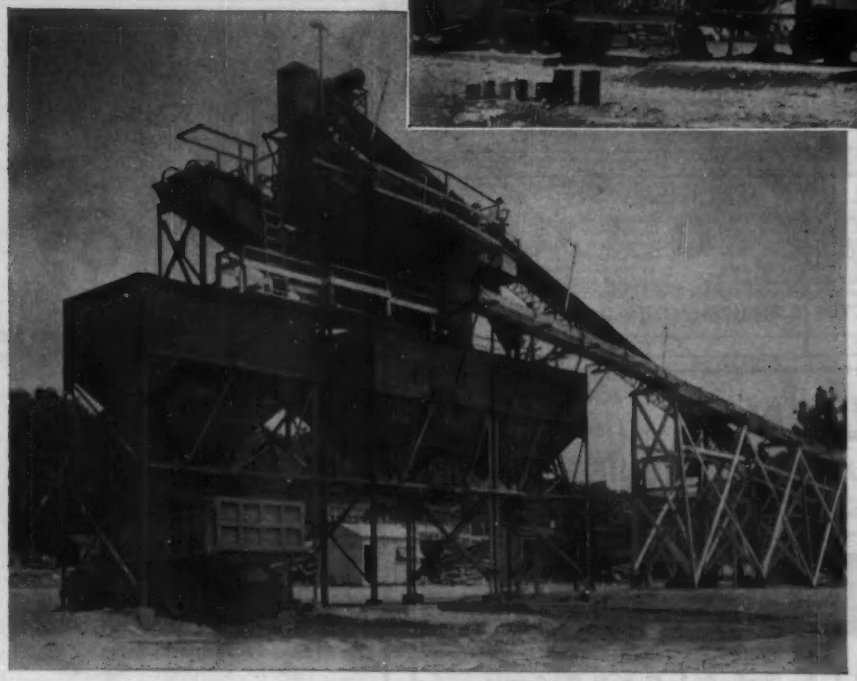

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Engineering Competition on a Price Basis

THE BARS AGAINST COMPETITION for engineering engagements on a price basis have been lowered without being taken away by the Board of Direction of the American Society of Civil Engineers. At its recent meeting, the board approved a substitute for Clause 4 of the ASCE Code of Ethics that would eliminate the present seemingly complete prohibition against permitting price to be a factor in the selection of an engineer. Instead, the effect of the substitute clause would be to allow engineers to state their price when competing with other engineers for a professional engagement, so long as there are "reasonable grounds for belief" that price will not be the prime consideration in selection of the engineer to get the work (ENR Nov. 3, p. 23).

This is a courageous step in the right direction. In the first place, it recognizes that price, quite frequently, is a factor in the selection of an engineer, despite much theorizing to the contrary. But, more importantly, it appears to be recognition of the fact that, in large public undertakings, the public agency charged with responsibility for building the project has a right to determine at what price any one of several equally competent engineers will do the work.

How to provide public agencies with that information without ending up in a situation where price becomes the prime consideration is a problem that never has been solved satisfactorily. If some such change as is now proposed in the ASCE Code of Ethics will lead to a solution, then the change should be made.

These are some of the favorable aspects of the proposed new wording of Clause 4. Along the same lines, too, it is significant that the committee, which recommended the new clause to the board, developed its particular wording in order to provide a basis for each individual member of the society to judge his own conduct in matters relating to engineering service contracts. That is as it should be, for the possible variations in selecting engineers and offering engineering services are so numerous that the only practicable way to choose the good and avoid the bad is to leave the decision up to the individual, with the sole admonition to act in a creditable manner.

There cannot be much doubt in an individual's mind as to what is creditable so far as engineering service is concerned—a quality job and a high enough fee to assure it. By ruling out situations where price is the prime consideration—and, by implication, where professional qualifications are not placed first—the proposed new clause would seem to give all the guidance necessary.

The trouble with the present wording is that it can be interpreted in so many ways—and always dogmatically—that no engineer can long escape charges from one quarter or another that he has violated the code. The existence of such charges and suspicions has kept the profession in a continuous state of unrest, with the ever present danger of damage to its standing and reputation. In addition, the society committee that has the duty of enforcing the code has faced an impossible situation in ruling on borderline cases. There should be fewer such cases and fewer charges of malpractice under the wording proposed for Clause 4—and with no lowering of professional standards if the apparent intent of the wording is universally accepted.

It may well be—and this is the most obvious shortcoming of the proposed clause—that this intent is not expressed explicitly enough. What are "reasonable grounds" for believing that price will be the prime consideration? Or who decides that there are grounds for doubt, the engineer or a jury in the form of a society committee?

These and other questions may deserve further study, and may in fact have been in the committee's mind when it stated that "further clarification may be found necessary in the future." Overall, however, such unfavorable aspects are minor compared to the fact that the proposed new wording represents a distinct improvement over that of present Clause 4. The question the society membership has to decide is whether the present unclear and unrealistic prohibition against participation in competitive bidding on a price basis cannot better be abandoned in favor of a plan which openly acknowledges price competition, but with price plainly relegated to a secondary position.

While They Are Still Around

WHEN O'SHAUGHNESSY DAM WAS NAMED after the long-time city engineer of San Francisco, he pointed out that it was dangerous to do this because there was yet time for him to do some misdeed that would bring shame to the name. No such thing happened, of course, and he wore the honor with dignity and satisfaction.

Recent dedication of the reservoir behind a great dam on another California river, the San Joaquin, in honor of David H. Redinger, is similarly commendable for being done while he is still around to appreciate it. Some 350 people made the long trip over mountain roads to the dedication to show how they felt about David Redinger and his contribution of more than 30 years to the harnessing of the San Joaquin. His book, "The Story of Big Creek", modestly records this contribution. When a man gives so much of his life for the benefit of so many, it is only fair to acknowledge his good work while he is still around.

Spokane Coliseum largest in Pacific Northwest

Spokane's new civic auditorium, opened late last year, is a multi-purpose building in which everything from banquets to circuses can be staged. The main auditorium of the $2½-million structure measures 210 by 125 ft, making it the largest in the Pacific Northwest. Seating capacity for most events is 8000.

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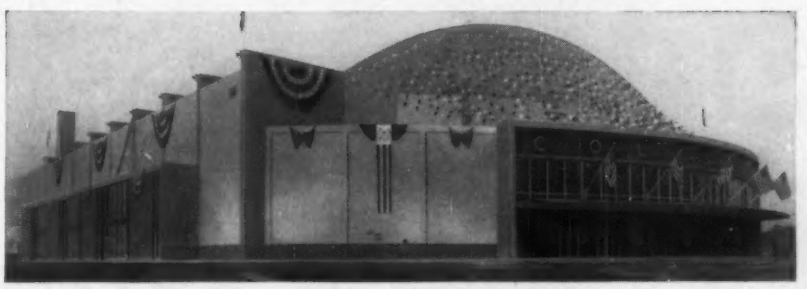

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